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September/October 1987

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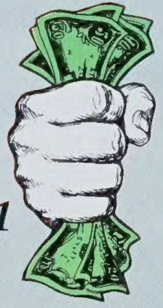
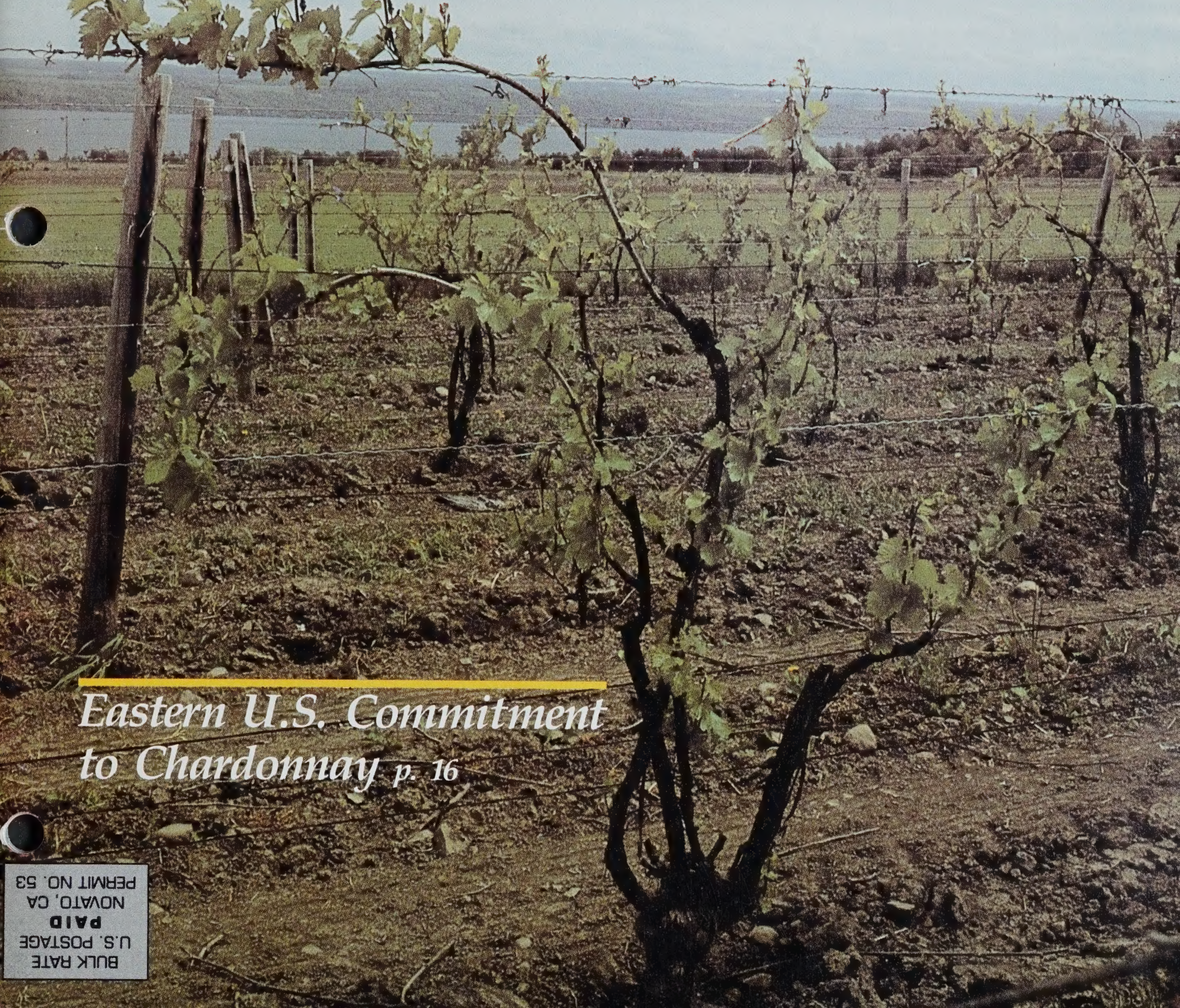


Salary Survey: Part I, p. 31



Eastern U.S. Commitment to Chardonnay p. 16

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PRACTICAL WINERY & VINEYARD

SEPTEMBER / OCTOBER 1987 VOLUME VIII, NO. 3

FEATURES

VARIETAL REPORT

16 Eastern U.S. Commitment to Chardonnay .... *Eleanor & Ray Heald*
24 Tasting Notes

GRAPEGROWING

22 Infrared Photography Aids Vineyard Management .... *Diane Mayfield*
35 Burgundian Viticulture: Ripening .... *Don Blackburn*

COMPENSATION

31 1987 Salary Survey, Part I

MARKETING

44 Strategic Insights For Successful Premium Wine Producers, Part I *John E. Van Kirk & John Schaller*

PURCHASING GUIDES

42 Second International Symposium for Cool Climate Viticulture and Oenology —New Zealand, January 1988
46 Marketplace
50 Advertiser Product/Service Index

DEPARTMENTS

6 The Wine Retailer .... *Stan Hock*
10 The Wine Lawyer .... *R. Corbin Houchins*
14 Winery Water & Waste .... *David Storm*
13 Letters to the Editor
41 Upcoming Events
25 Bookshelf
27 PRACTICAL WINERY / VINEYARD Subscription Form

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See page 16—Eastern US Chardonnay

See page 31—Salary Survey

See page 35—Burgundian Viticulture

COVER:

Chardonnay at leaf out at the Plane's Cayuga Vineyard in the Finger Lakes Region of New York State. *Photo by W.K. Dugan, Ithaca NY*

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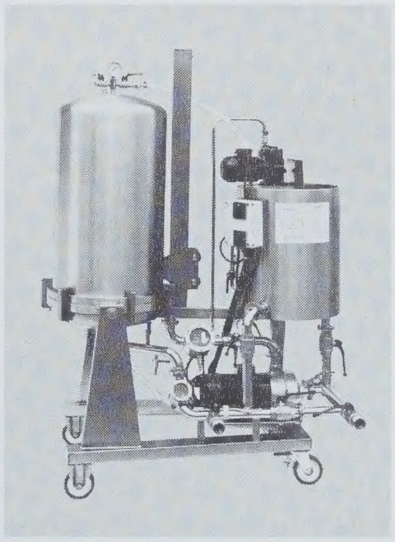

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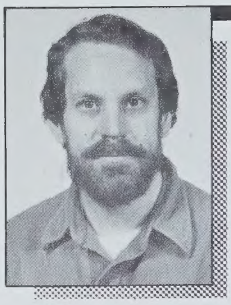


The Wine Retailer

Stan Hock

Tucker Catlin discusses a concept from the Seminar Notebook. Class surrounds a hole in vineyard as Catlin describes different soils.

Summer School

I've been in the wine business for a decade now, and in that time I've attended a multitude of wine trade ‘events’—tastings, luncheons, dinners, picnics, softball games, even cruises on San Francisco Bay. While the preponderance of these affairs have been decidedly pleasant, even gratifying (particularly in regard to the opportunity they provide to partake freely of good food and wine), few have proven to be of lasting value to me.

What I mean by this is that wine trade events, by nature, rarely are educational; they seldom add to one's understanding of grapegrowing or winemaking. Instead, their purpose is to foster in the retailer, restaurateur, or writer, via the liberal provision of wine, food, and atmosphere, a favorable disposition toward the products of the event's sponsor.

There's nothing wrong with this. In an increasingly competitive wine market, producers must promote themselves and their products aggressively, and the most effective way they do it is to showcase their version of the romantic wine country lifestyle to the people who peddle their products to the consumer.

I certainly would never claim immunity to this form of seduction. After a splendid luncheon in the beautiful vineyard of a charming, gracious winery proprietor who fills my glass while soliciting my opinions, the impulse to place an order, to commit a favorable word to print, ripens in me quickly.

It doesn't take long to remember, though, that I am being cultivated for my utility—real or potential—to the winery's cause, fattened, as it were, for the promotional kill. It's the rare occasion when I feel that, in addition to my stomach and palate, my mind is being fed too. Seldom am I offered new insights or nuggets of valuable information that I may in turn offer to my customers or readers.

Tramping Through the Vineyards

These reflections are prompted by my experiences during a recent week-long sojourn to Napa Valley. I was there for several reasons: to attend events associated with the Napa Valley Wine Auction, to do research for an article on Howell Mountain viticulture, and, most profitably, as it turns out, to attend a three-day viticultural seminar hosted by Sterling Vineyards.

The purpose of the Sterling program—aside from the winery's desire to promote itself—was to emphasize to interested members of the wine trade the critical, umbilical connection between vineyards and the wines that issue from them and to demonstrate that it is possible to predetermine a wine's personality by manipulating key conditions in the vineyard.

This idea—that the vineyard is the single most profound factor in a wine's development and eventual character (much as a nation's collective consciousness leaves its indelible imprint upon each of its citizens)—may be old news in France, but it has been embraced like divine inspiration in recent years in California, a wine region blessed by nature that heretofore has invested its faith primarily in winemaking technology.

The new wisdom—which is the old wisdom in Europe—is that wines are made in the vineyard (the winemaker really can only fiddle with, refine, or betray the raw material). The result of this shift in outlook is that energy and resources that previously flowed into the winery—a temple of technology where man bent recalcitrant grapes to his will—now are being focused on viticultural research designed to yield a more satisfactory answer to the eternal puzzle of oenology: why does a wine look, smell, and taste as it does?

Sterling Vineyards is a leader in this return-to-the-vineyard movement, and its viticultural seminars are a way to let opinion-makers in the wine trade know it. Sterling's work with soil analysis, irrigation, clonal and rootstock selection, vine spacing, and state-of-the-art trellising and canopy management techniques affords the winery a chance to promote itself while at the same time providing a genuine educational opportunity to members of the wine trade. It is a beautiful example of enlightened self-interest.

During the two full days of the seminar, my colleagues and I—a diverse assortment of writers, retailers, and restaurateurs from across the country—visited most of Sterling's key vineyards, from the recently-acquired Winery Lake Vineyard in the Carneros district to the spectacular Diamond

Mountain Ranch in the mountains southwest of Calistoga.

On a cool, foggy morning at Winery Lake, vineyard manager Tucker Catlin gave his temporary charges a brief lecture on plant physiology, photosynthesis, and the critical importance of balancing leaf growth to fruit development, a balance achieved primarily through thoughtful pruning.

As he led us through the diverse topography of the well-known vineyard, Catlin elaborated upon the connections between soil type, water drainage, canopy growth, and wine personality, and explained that, when Sterling acquired Winery Lake in 1986, he and his staff were charged with analyzing the salient features of each distinct portion of the vineyard (delineated by different soil types, slopes, exposures, clones, etc.).

The goal of this painstaking research was to determine in which sites each of Winery Lake's primary varieties—Chardonnay, Pinot Noir, Merlot, and Riesling—would fare best and to devise site-specific cultural practices that would maximize grape quality once the right configurations were chosen and effected. (Sterling retained all the grapes harvested from Winery Lake in 1986 in order to make a complete assessment of the vineyard.)

As a result, where Merlot vines once stood, there soon will be patches of Chardonnay; where Riesling grew on a hillside, the sun will ripen Pinot Noir; where one Chardonnay clone held sway, another more worthy will replace it. With Sterling in charge, the physiognomy of Winery Lake Vineyard is rapidly changing.

At Sterling's Rutherford Ranch, we received a lesson in blending from winemaker Bill Dyer. Presented with the components of the winery's Reserve red wine—Rutherford and Diamond Mountain Cabernet Sauvignon, Merlots from Bear Flats and Bothe Vineyards, Diamond Mountain Cabernet Franc, and Petit Verdot—we were encouraged to concoct a blend of our own.

In the process, it became evident that a little bit of Diamond Mountain Cabernet Sauvignon went a long way toward contributing extract, color, spice, and hard tannins to the blend. The Cabernet Franc lent perfume, the Merlot softness, and the Petit Verdot color and acid.

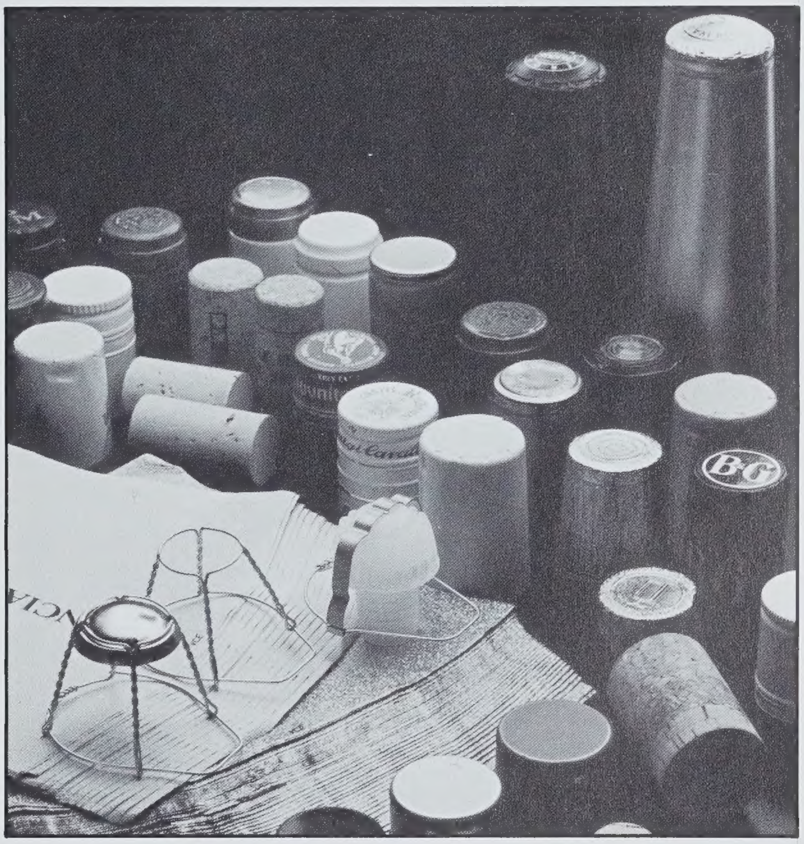
A visit to Sterling's Petersen Ranch, a mountain vineyard at 700 feet planted to Cabernet Sauvignon in 1972, was particularly instructive. Here, we expected to find the lean soils and stressed vines typical of mountain vineyards, and the dark, tough, long-lived wines such vines produce.

But Catlin was throwing us a curveball. The soils at Petersen are unusually rich and deep for a mountain vineyard, the leaf growth excessively vigorous, and too much shading a major problem. The vines devote too much energy to their vegetative growth and not enough to fruit development; consequently, Petersen Ranch Cabernet Sauvignon is invariably light, thin, and herbal, unworthy of the Sterling label.

After experimenting with a variety of measures intended to ameliorate the shading problem—less severe pruning, opening the vine to sunlight via the Geneva Double Curtain trellising system—Sterling shrugged its corporate shoulders in 1986 and used these disappointing grapes to make Cabernet Blanc.

At Diamond Mountain Ranch, Sterling is conducting experiments with irrigation. In one test section of the vineyard, a block of vines is dry-farmed, another is given 10 gal/week of water, a third is watered early in the season and stressed late, and a fourth receives the reverse treatment.

Daniel Roberts, Sterling's viticulturist, is attempting to correlate these



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different irrigation regimes with the vines' fruit/wood ratio, their ripening patterns, and the amount of fruit they yield, as well as with the color, pH, and phenolic content of the wines their grapes produce. The results of these experiments sometimes confound expectations, but, gradually, Sterling is determining the methods required to maximize grape quality in the mountains and measuring the cost involved in doing so.

Promote and Educate

Growing the best grapes possible is a viable option for Sterling because of the vast resources of its owner, Joseph Seagram & Sons, that also make possible an impressive promotional program like the one I attended. And impressive it was. Sterling's key personnel—Tucker Catlin and Bill Dyer in production, Claudia McAllister and Valerie Presten in promotion—not only are talented people, they are personable as well; to put it crudely, Sterling has acquired the best that money can buy.

The logistics of the event were handled beautifully, too—from the prompt arrival of the buses that ferried us from vineyard to vineyard to the perfectly-executed tastings, luncheons, and dinners that punctuated our field studies (most of which occurred in tents set up in the vineyards). Our hosts even took the trouble of bottling up the trial blends of 1985 Reserve Red we so enthusiastically, if amateurishly, concocted.

As you can tell, I was snowed, and given my deep suspicions about corporate winemaking, that speaks volumes about the job the folks at Sterling did. True, it was free and the food and wine were great, but, more importantly, I received a crash course in modern viticulture that will serve me well for years to come. I appreciate that.

Of course, few wineries, particularly small ones, can afford to mount such an ambitious, costly program. But it doesn't take much to stage an educational tour of a vineyard, a component tasting, or a lesson in blending. The mere fact that a winery grows grapes and makes wine means it has something of value beyond a free meal to offer a group of inquisitive retailers, writers, or avid consumers.

It's probably true that many people in the wine trade would rather eat and drink than think about viticultural and winemaking issues, but those of us who do care about these things are the ones who matter in the long run, because we know there is more to a glass of wine than simply a name, year, and appellation. We know that there are stories aplenty behind every glass of wine, and that, even in America, there are people who want to hear them.

Sterling certainly is doing its part to disseminate this information. Since last November, Tucker Catlin, Bill Dyer, and winery president Tom Ferrel have treated wine trade members in 18 cities around the country to a condensed version of Sterling's viticultural seminar. The program includes a slide show, wine tasting, and an introduction to wine blending.

There is no free lunch, but more than enough food for thought.

Editor's Note: In the July/August 1987 *PW/V*, The Wine Retailer column contained a reference to the chemical urethane. Its presence in wine was described as being measured in ppm. In fact, urethane is measured in wine in ppb (parts per billion).

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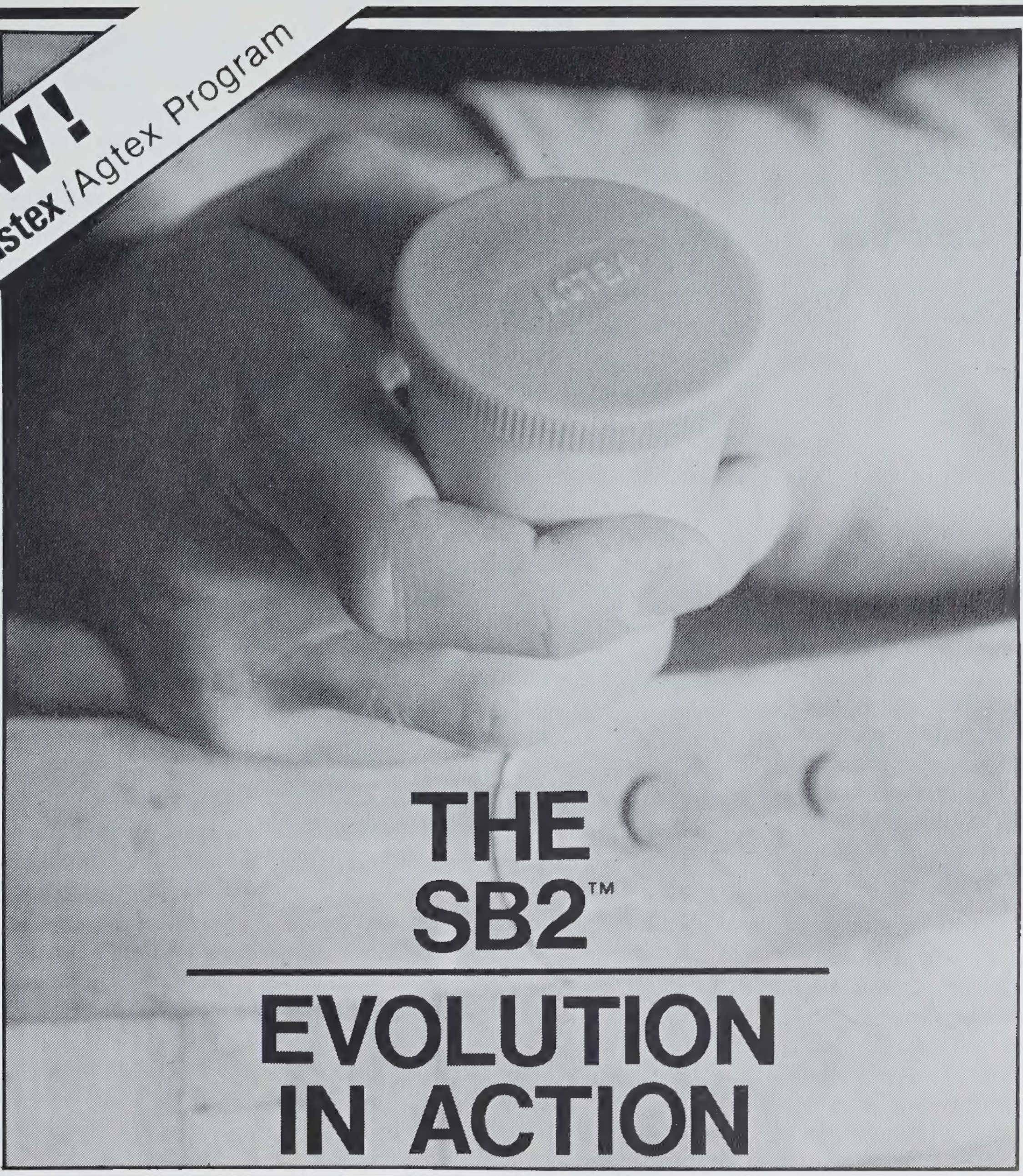

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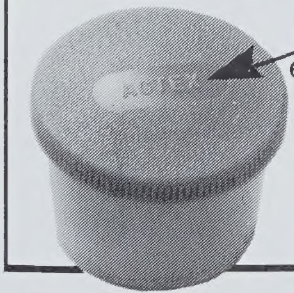

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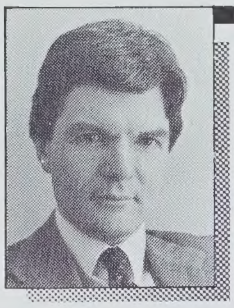

The Wine Lawyer

R. Corbin Houchins

Exploration

Not long ago I heard someone ask a winery owner if he planned to get involved in exports. The reply was, "I already am. I've been shipping to Chicago for years."

He was correct, of course. North American laws make sending wine to another state rather like shipping to a foreign country. The statutes and regulations even refer to the process as exporting and importing.

Concentric Circles

As a winery widens the horizons of its marketing plans, it confronts new sets of legal issues as the expanding circle passes certain key points.

In the next few Wine Lawyer columns we will look at changes in the ways of doing business that export sales require, from just up the interstate to across the ocean.

The First Frontier

In some ways crossing the first state line is the single largest step.

For customers in the same state that issued your winery license, you have a choice of several ways of getting the product to market. It may be a good idea to sell to distributors or brokers in the in-state areas beyond the loading dock, but from a legal standpoint it is optional. Once you sell into another legal jurisdiction, your customer is necessarily someone who holds a license or other legal authority to import.

Defining the Job

There are several viable ways to get your product to markets over the horizon, but shipping the cases to a distributor/importer and waiting for checks in the mail is probably not one of them.

A good place to start in drawing up an export business plan is with the additional human tasks required. Selecting the people who will perform those tasks, whether winery employees, distributor employees, brokers or other marketing service providers, is a highly individual matter on which it is impossible to generalize. It may, however, be possible to make some useful statements about the tasks themselves.

The Minimum Job Order

At the very least, you need unbiased eyes and ears in the marketplace.

In addition to marketing decisions that require local knowledge, there is a certain amount of red tape that must be dealt with, and a small winery probably needs help identifying opportunities for cost-effective promotional activities, such as personal appearances by the owner and winemaker. A list of the skills called for would include:

Market Intelligence: When you send your most valuable asset (your brand name and the goodwill attached to it) off to far-flung places under the care of somebody else (who possibly has a few hundreds of others in his book) you need to have some reliable way of knowing what's happening there.

Market surveys to check on the activity of competitors and of your distributor are essential. It is also important to keep a current file on which distributors would be desirable customers in new markets or (heaven forfend) in markets where a change of distributors is likely.

Field Sales: The sales function in the packaged goods industry is rather more complex than that of the traveling salesman or drummer whose success is measured by the number of cases the customer orders.

Classic field marketing involves selling the distributor a program: a combination of distribution objectives, store placement standards, volume objectives, use of POS, participation in promotions, current recommended pricing, current line emphasis—whatever is necessary in order to make the marketing plan go.

There are some serious legal pitfalls in distributor relations, which are most hazardous when people performing the field sales function do not have adequate instructions and incentives to follow them. Especially troublesome are such matters as resale price recommendations, and coordination of chain presentations or other aspects of competition among distributors. The degree of risk goes up geometrically as the number of people involved in field sales increases.

Traffic: For wineries that ship in less than carload lots, how well the shipment consolidation and carrier selection game is played will have a big effect on the bottom line.

Frequently, it is more efficient to ship product from one distributor to another than to make a shipment from the winery when a short-inventory customer is in need. State laws vary on the paper chase required to accomplish it.

Postings: Lead time is required for pricing decisions in any case, especially if you expect to be in chain stores. Some jurisdictions require registering prices with the local regulators; lead times vary, as do the circumstances under which prices can be reduced for a fixed period after the price posting is filed.

For various reasons, it is unlikely that a nationally uniform FOB will be the most profitable price structure. Incentives to change prices will not occur simultaneously in all markets. Regulatory requirements have to be taken into account in scheduling market-by-market price movements.

Listings: State monopolies are still with us (and with Canada as well), and even where there is a private sector the state liquor stores may be important customers. Direct sales are feasible, but someone has to do the work of getting listed and soliciting orders.

Reps: Representatives often have to be registered and may need licenses. Someone has to see that whoever makes sales or missionary calls (including the owner and/or winemaker, if they are involved in selling) has the appropriate authorization.

Ads: A good distributor will want effective local advertising, including point-of-sale material. Different jurisdictions have different rules on what is permissible in ads and whether prior approval is required. The rules apply whether the ad is a TV spot or something you put together with a photocopied wine review and a felt tip pen.

Promotions: Promotional activity usually involves dispensing the product. Regulatory requirements differ by jurisdiction. Someone has to insure that the planned promotion fits the local rules.

Handling the Customer by Proxy

Recently there has been an increase in the number of businesses which offer to act as intermediaries between a winery and its customers in export jurisdictions.

We have looked at brokers and other alternatives in past columns. In future columns, we will review some traps, such as waking up married to a distributor you haven't met and courses of action that can muddy ownership of brands you always thought were yours.

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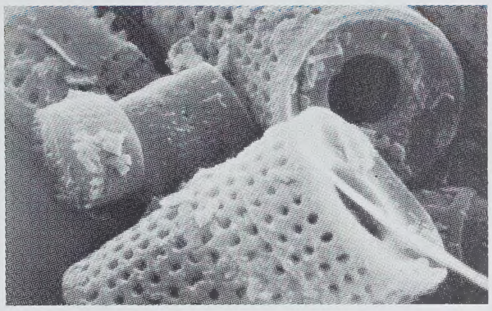

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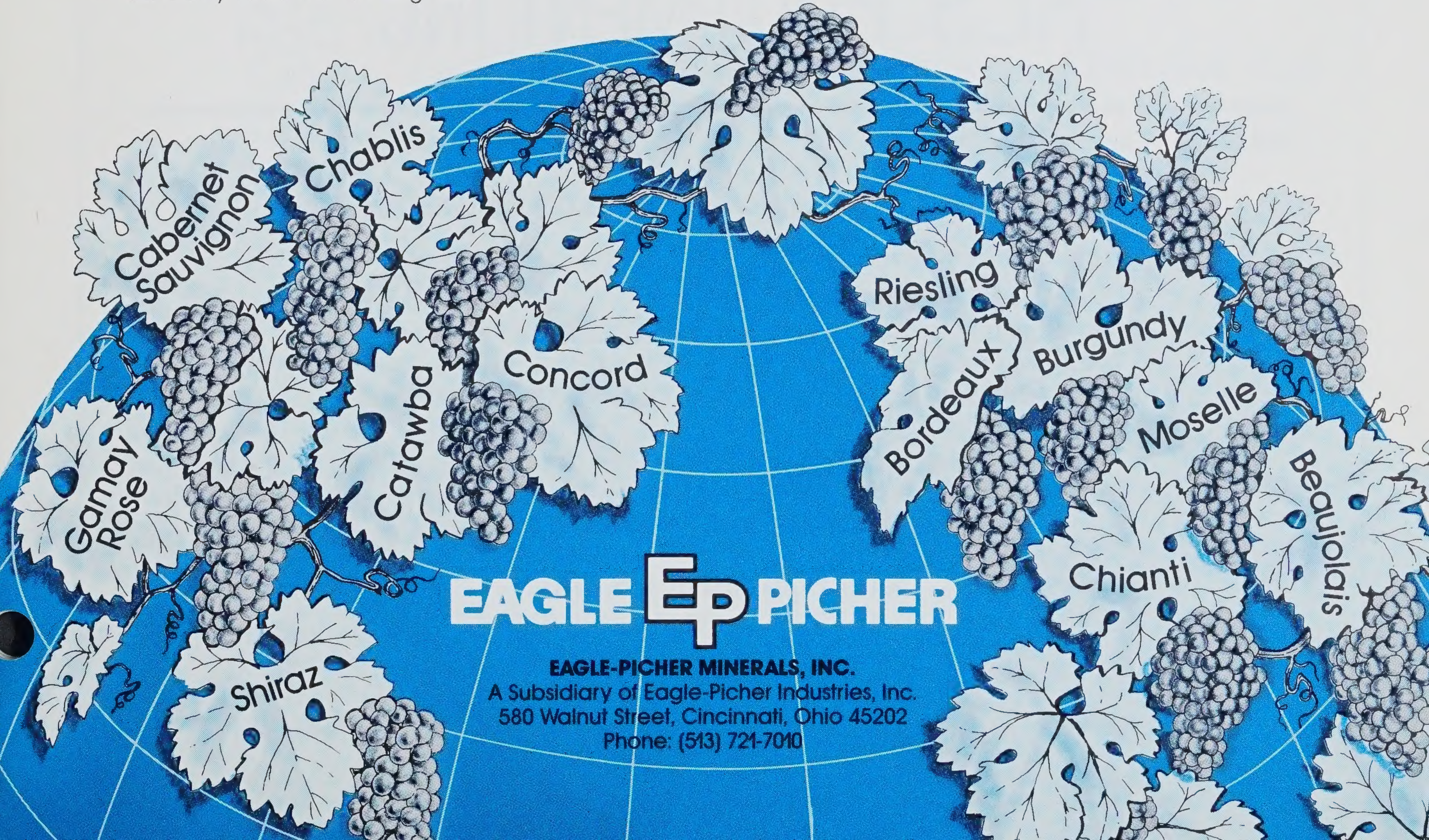

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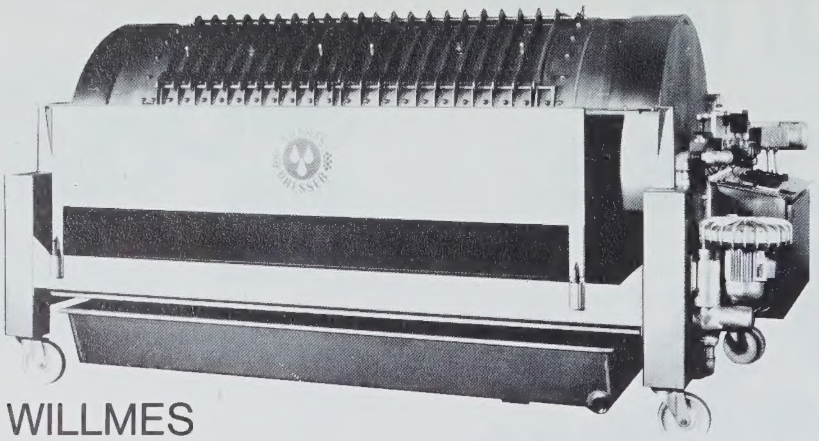

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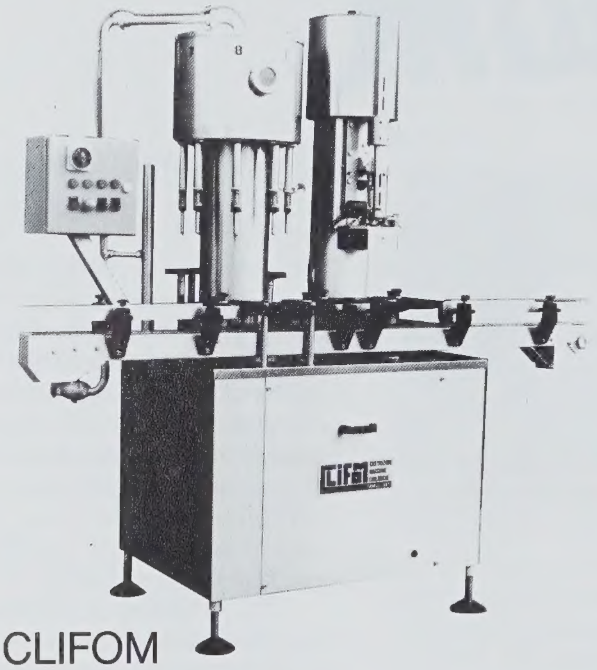

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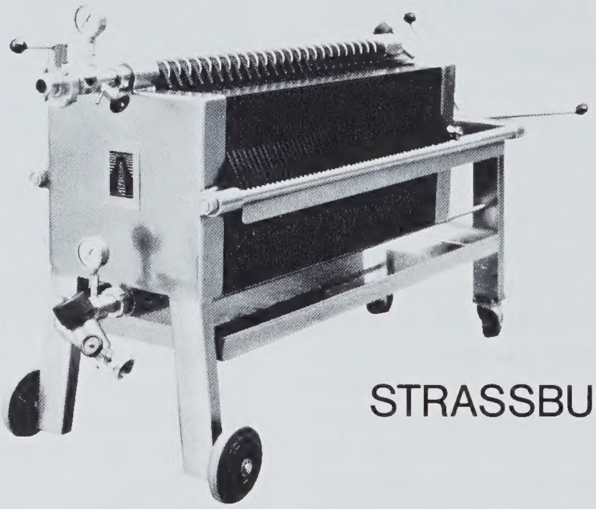

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Letters to the Editor

Dear Editor:

I would like to congratulate you on an excellent publication. We are a tiny winery that began operation late in 1985, presently the only Colorado winery making all of its wines from grapes grown in Colorado.

We have a lot of learning to do, especially those of us who have heretofore been involved with wine strictly as consumers, and as one of those, I am particularly pleased with the balance you strike between in-depth, thorough articles, yet written so that people new to the business can understand most of what is written and apply it.

Often, the language particular to a given industry is incomprehensible to an outsider (certainly in the wine industry), and you do an excellent job of either avoiding it or explaining it as you go. My own background has me in the marketing end of the winery business, but I also get active in representing the winery to growers. Articles in both these areas have been especially appreciated to bring me up to speed.

Regards,
Ted Mann, Vice President
Plum Creek Cellars, Evergreen, CO

Dear Editor:

Stan Hock's column on the CSPI (*PW/V* July/August 1987) was just outstanding. All of us in the wine industry must work *harder* to convince U.S. citizens that wine is the healthful beverage of moderation, and not a *drug*, and not responsible for drunk driving (and *drug*-driving) accidents. Good job.

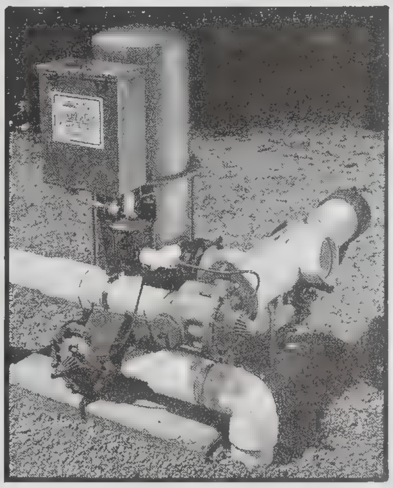
Thanks,
John Gay
Rosemount Estates, Sonoma, CA

Dear Editor:

Gerard Bentryn's letter in your May/June 1987 edition concerning some of the problems of small wineries struck a chord with me as a kindred spirit. I hope you get a lot of suggestions on the points he was making, such as monthly reporting to the BATF.

In our state, when we pay our bills, we only report sales taxes quarterly. Since one has a bond with the BATF, it seems logical to report no more often than quarterly.

Sincerely,
Ray Skinner
Laurel Hill Vineyard, Memphis, TN



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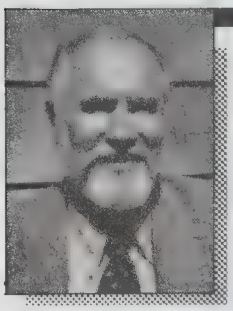

Winery Water & Waste

D.R. Storm, Ph.D, P.E.

Value Engineering

Value Engineering (VE), is a cost control technique which provides significant savings in the construction and operation of complex projects. It is a process the wine industry can profitably utilize to cut costs in new winery construction, plant expansions, and even routine production functions.

The basic techniques and protocols were developed by the U.S. Navy over 30 years ago as a way to stretch dwindling construction funds. A secondary benefit of VE was to produce a facility that would cost the least to operate and maintain over the life of the project.

Projects Suitable for VE

The larger a project, the greater the potential for significant cost savings from VE. For a multi-million dollar winery project, VE offers the opportunity to obtain the best functional and architectural design for the least expenditure of funds. This includes utilities, landscaping, and general site development.

VE analysts are a mixed group of experts with a depth of experience in design and construction in their respective specialties. Nonetheless, the potential cost savings (capital and annualized) realized from any 'VE'd' project will exceed by a considerable amount the salary and expense costs for a VE team. I recently participated in a VE analysis of a 2.5 million dollar project which resulted in cost savings of nearly $500,000. It really works!

VE Team Qualifications

It is not sufficient merely to have capable architects, engineers, and construction management specialists with good track records in their fields. They also must have attended a VE seminar, either under the auspices of a government agency (Corps of Engineers, Naval Facilities Engineering Command, General Services Administration or the Environmental Protection Agency) or through a privately sponsored industry seminar (American Institute of Architects, American Society of Civil Engineers, or other professional membership groups).

The seminars generally are 40 hours long, and the participants work through a 'real' project to get a feeling for procedures and methods. Each real-life team has a leader or coordinator and that individual usually has served on several previous VE projects.

Reactions to VE by Design Professionals

The typical attitude of an architect or engineer about to have his design VE'd is an amalgam of horror and anxiety. Why can't the designer do his own VE analysis? The reason is that, the benefit from VE comes largely from having several sets of new eyes view the project's functions and designs with an entirely different mind-set and background.

The designer being VE'd must cooperate to the fullest extent possible with the VE team in order to reduce the time team members spend analyzing design alternatives. No one knows more about site constraints and limitations than the original designer. After all, it is his choice, given all the complexities of the design process, that puts a selected option on the drawing board as a candidate for construction.

The VE team may make an entirely different choice for all the wrong reasons. While waiting until the project is ready to be bid may seem an inefficient way to utilize VE, all the designer's ideas and costs must be firm before an alternative analysis can be effectively applied.

Lifecycle costs are often the criteria governing the choice of equipment (pumps, compressors, heating, ventilating and air conditioning units). If power savings for one piece of equipment over another are really significant, those savings projected over a 20 to 30-year period will produce dramatic changes in a winery's balance sheet.

The most difficult thing for the designer to do is to 'swallow' a superior alternative offered by the VE team. The designer's ego, pride in design, and perhaps embarassment for having overlooked a less expensive solution all come into play.

As a matter of VE protocol, the original designer is presented with a package of supporting calculations, functional analyses, and comparative cost estimates that show the designer's original costs, VE's alternative costs, and life cycle cost differences, if any. The designer is given a chance, during a preliminary briefing, to reject or accept the design change or to accept it with reservations.

The amount of 'paper' generated by VE is usually quite small, even on projects in the 8 to 10 million dollar range. The more complex the project, the more design facets there are to restudy; paper production increases in direct proportion to project complexity.

Other Wine Industry Uses for VE

The wine industry appears to be a

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great candidate for VE or at least for its analytical approaches. The VE process itself begins with a speculative or 'free thought' phase ('brainstorming' as it was called years ago). Team members attack a given element of the project and propose alternatives, which a later screening process may reject as impractical.

This may sound like a boring intellectual exercise, but, in my opinion, saving gobs of dollars is never boring. Think of a grape harvest or crush planning meeting in which all winery personnel help to identify the functions and specific applications of all equipment in the winery.

- refrigeration unit:
  - to cool
  - glycol chiller
  - must chiller (heat exchanger)
- gondola:
  - to carry grapes
  - 4-wheel dumpable trailer
  - transport for grapes from vineyard to crusher

This would provide the framework for the next VE step, a more detailed functional analysis of costs (a simple bar diagram would highlight the major cost elements to be focused upon).

GONDOLA dollars/hour/year/harvest
Tractor or truck ____________
Gondola (trailer) ______
Fuel, tires, etc. ________
Labor & overhead ____________
Insurance __________
Maintenance ________
Equip. depreciation ______

The next step is the identification of alternatives and their associated costs, so that these may be compared to costs for existing systems and equipment. An *idea evaluation* phase would follow, to filter the list and reject those ideas having little cost impact or influence on the functional element. This less formal approach to Value Engineering might be terminated at this point and the screeneed ideas presented to the front office for consideration and, if appropriate, future budgeting.

As this edition of PW/V finds you either up to your armpits in grapes or wine (or both), you may not be receptive to new ideas as you struggle with the realities of the moment. Put it on your calendar to restudy the VE process at a less hectic time.

The references included are for those who want to dig deeper into the subject. I do have in my files the basic 7 or 8 worksheets that are used in formal VE studies. They may give you just the ideas you need to try the VE approach on harvest, crush, bottling, warehousing/case storage or a host of other winery functions that cry out for streamlining and greater efficiency. If you would like a sample of VE worksheets, please send a self-addressed, stamped envelope to: VE c/o Storm Engineering, PO Box 681, Winters, CA 95694.

Just think, all this time you thought VE meant volatile esters!

David Storm is a Consulting Civil Engineer and Sanitary Engineer and Owner/Winemaster, Winters Winery.

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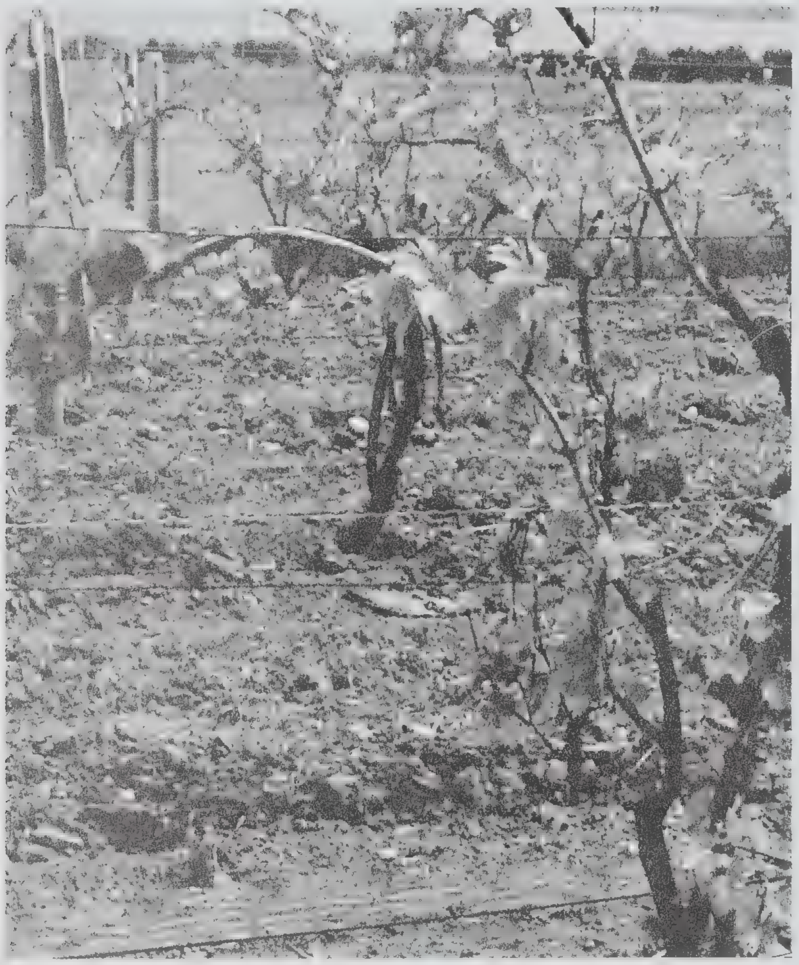
Eastern U.S. Commitment to Chardonnay

Ray & Eleanor Heald

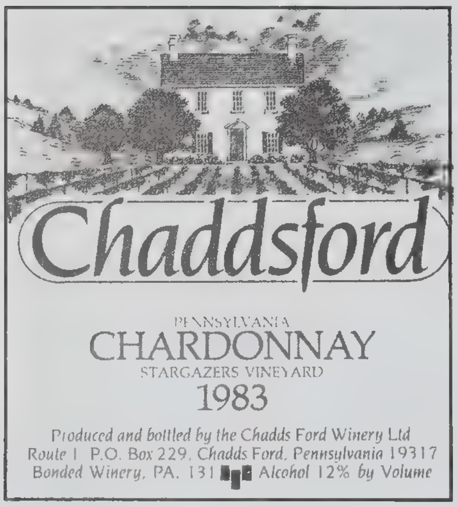


"Duels between California and French Chardonnays have been well-publicized," notes Lucie T. Morton in *Winemaking in Eastern America*. "To these contenders, we can now add Chardonnays from many eastern states and those of the Pacific Northwest. Old absolute values are beginning to evolve, now that Chardonnay need no longer emulate Montrachet to be considered 'great'."

Chardonnay is a viable *vinifera* for wine production in the northeast since it is generally considered one of the more winter-hardy *vinifera* varieties. Winemakers interviewed expressed little concern for its survival in severe winter conditions, with the following exceptions: sudden freezes when the temperature drops rapidly from 50°F to well below freezing in a few hours, particularly if the vine has not become fully dormant; and warm periods during winter months which push buds prematurely, then kill them when the weather turns cold again.

Morton is emphatic in her pronouncement about eastern Chardonnay production. "Any eastern winery producing *vinifera* wines will almost certainly produce a Chardonnay. There is a tremendous variation among Chardonnay wines throughout the East, owing to young vines, different vineyard climates, and varying winemaking techniques." Her claims are verified in the following interviews.

CHADDSFORD WINERY



Chaddsford

PENNSYLVANIA
CHARDONNAY
STARGAZERS VINEYARD
1983

Produced and bottled by the Chadds Ford Winery Ltd
Route 1 P.O. Box 229, Chadds Ford, Pennsylvania 19317
Bonded Winery, PA. 131[redacted] Alcohol 12% by Volume

Eric Miller

Owner/winemaker Eric Miller of Chaddsford Winery in Chadds Ford, PA, believes that his wine style is controlled by several factors, beginning with grape quality. Miller's ideal harvest window is 19.5–22.5° Brix, 0.85–1.0 g/100mL TA, and 3.25–3.35 pH with grapes free of mildew and molds. "Ideally, the temperature of the grapes is 60–70°F," says Miller. Another critical temperature is that of peak fermentation (50–70°F) and probably duration of peak.

"These parameters tend to produce a lighter, fruitier style, best for early consumption and cash flow. Fermentation temperatures of 75–79°F tend to produce a medium- to full-bodied, earthier-style wine that improves with additional barrel and bottle age."

Wine Style

"I produce two styles of Chardonnay," says Miller. "One is an agreeable, young wine for early consumption. The other, our largest quantity, is for keeping. Its fruit is muted by production techniques and requires 1.5–2 years to show pale-gold color, nose of toast, earthiness, and reticent fruit with palate characteristics of earth, toast, honey, vanilla, and sometimes lemon. Big California spice and butter is definitely not my goal, but the wine should have a long finish.

"In order to preserve natural acidity and clean mouthfeel and to offset big body and intense earth flavors, malolactic fermentation is avoided. When we have high-pH (3.35–3.4) vintages, malolactic activity is encouraged. Therefore, we maintain low cellar temperatures and free SO_2 levels of 30 ppm.

"Although this wine is very tight and yields little when young, it can be consumed within two years. Primarily, I am concerned with making a wine that will age gracefully, if cellared properly, and be comparable with its costly Burgundian counterparts."

Grapegrowing

Miller purchases grapes from Stargazers Vineyard in Chester County, southeast PA, planted in 1978, with rows in an east-west direction on a 20% south-facing slope spaced 6x9.5 feet with excellent air drainage. The vineyard is 10–50 feet above the frost line. The soil is light clay and loam with a topsoil depth of 6 inches.

At Stargazers, fruit is set on the lowest trellis wire at 3 feet.

Two catch wires, set at four feet, are lifted in July followed by hedging in August. Yield is 2–4 tons/acre.

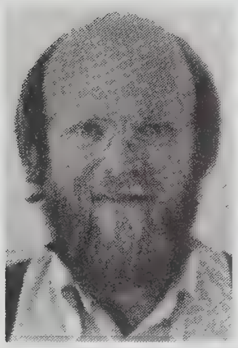
"Aside from the very serious effects of crown gall, there are few viticultural problems with Chardonnay in southeast PA—it's a natural," concludes Miller.

Winemaking

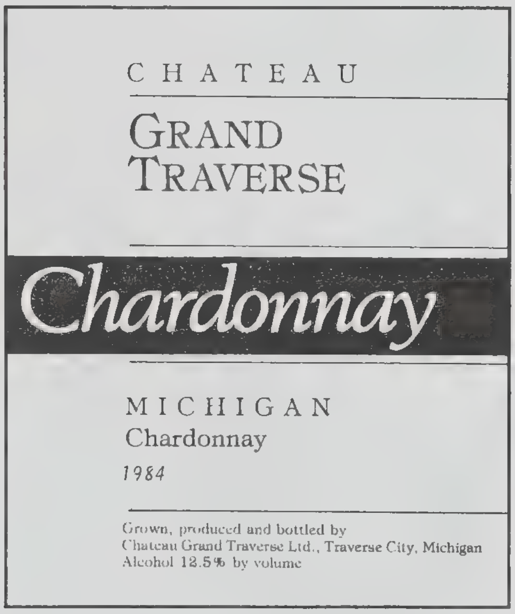
At crush, 30 ppm SO_2 is added along with 10 g/ton pectic enzyme. Maximum skin contact time is 5 hours. Rice hulls are used as a press aid. Juice is settled for 24 hours at 60°F before racking and inoculation with Epernay II yeast. Free run and press juice are fermented separately, and tank fermentation lasts 5–7 days. Acid adjustments are made if necessary within the first two months. In 1983, peak fermentation temperature was 75°F.

Wine is racked off the gross lees at dryness into new to 18-month-old Allier and Nevers barrels. While retaining some lees, racking is done, typically at 60–90 days after first racking, then at fining, and again at filtration. Barrels are topped at 30- to 60-day intervals, and free SO_2 adjustments to 30 ppm are made. Barrel ageing is 6–10 months. Prior to bottling, the wine is bentonite-fined and filtered through medium and polish-grade pads.

CHATEAU GRAND TRAVERSE



Mark Johnson



CHATEAU

GRAND
TRAVERSE

Chardonnay

MICHIGAN
Chardonnay
1984

Grown, produced and bottled by
Chateau Grand Traverse Ltd., Traverse City, Michigan
Alcohol 12.5% by volume

Mark Johnson, winemaker at Chateau Grand Traverse (CGT), Traverse City, MI, works only with *vinifera* grapes. CGT is the lone winery in Michigan to commit to wine production only from *vinifera* varieties.

Unique Microclimate

The vineyard was planted on contoured slopes in 1975 on Old Mission Peninsula, one mile from West Grand Traverse Bay and two miles from East Grand Traverse Bay. Johnson claims, "The bays never freeze solidly and our vineyard stays warmer during winter than those located in southwest Michigan." Vines are spaced 4.5x9 and planted in a northeast to southwest direction.

In addition, excellent air drainage helps to prevent winter damage. A unique microclimate is coupled with mildly basic, very rich, dark soil, about 18 inches in depth, with a well-drained sand/clay subsoil. Vines are hedge-rowed in August and trained straight up on an 8-wire trellis with the top wire at 6.5 feet and fruiting wire between 3 and 4 feet aboveground. This ensures maximum sun exposure and allows for easy maintenance and spraying during the annual average of 2,075 degree days.

Wine Style

"Good fruit and acid are the most important components of our Chardonnay," says Johnson. "We try to give just enough oak ageing (3–5 months in 4-year-old 55-gal German white oak) to lend complexity, but not enough to cover the fruit flavors or aroma. We strive for complex fruitiness well-married to oak flavors, with acid on the high side providing a good backbone. Our Chardonnay is sold in many restaurants across the U.S. and matches seafood preparations with a splash of lemon."

Picking/Production

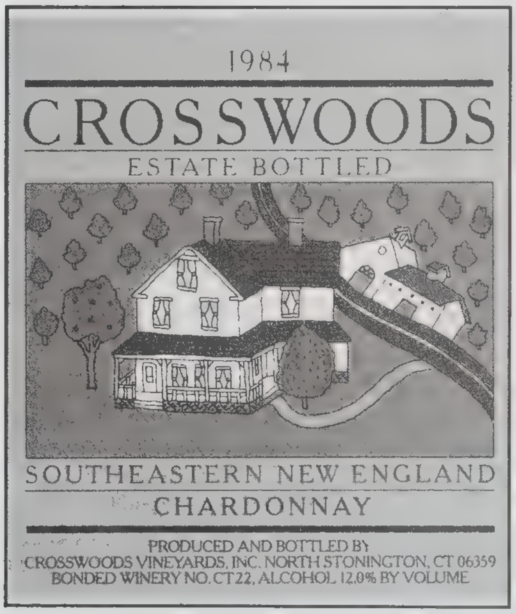
"We usually pick between October 10 and 25. I try to arrive at the best compromise between sugar content, pH, and acid along with health of the grapes," states Johnson. The harvest window is 19–20° Brix, 1.0–1.4 g/100mL TA, and 3.1–3.5 pH.

Skin contact of 12 hours is given at 55°F and the juice is settled for 12 hours. Juice lees are processed and the juice is added back prior to inoculation with Epernay II yeast. Bentonite is added just before fermentation begins.

Tank fermentation at 55°F completes in approximately 2 weeks. After about 6 weeks' settling, the wine is racked, medium-pad-filtered, and transferred to German white oak barrels that are topped every 2 weeks, with free SO_2 levels kept at 20 ppm. The wine is sterile-pad-filtered prior to bottling.

CROSSWOODS VINEYARDS

George Sulick



1984
CROSSWOODS
ESTATE BOTTLED

SOUTHEASTERN NEW ENGLAND
CHARDONNAY

PRODUCED AND BOTTLED BY
CROSSWOODS VINEYARDS, INC. NORTH STONINGTON, CT 06359
BONDED WINERY NO. CT22, ALCOHOL 12.0% BY VOLUME

George Sulick, winemaker at Crosswoods Vineyards, North Stonington, CT, claims that the style of Crosswoods' Chardonnay is still evolving. "In 1984, we emphasized fruit to understand more completely what grapes grown in this region could do. A moderate amount of time in new French oak gave the wine needed complexity. Additional bottle ageing has helped to develop a long, clean finish.

"In 1985, we experimented with barrel fermentation and extended lees contact. Our aim is to make a Chardonnay to complement New England's bountiful seafood—halibut, swordfish, tuna, oysters, and salmon in a Chardonnay cream sauce."

Adequate Ripeness

Crosswood's 7.5-acre Chardonnay vineyard, located approximately 5 miles inland from Block Island Sound, was planted in 1981 in fine, sandy-loam soil. Chardonnay ripens mid- to late September through mid-October to between 21° and 22° Brix with 1.0–1.2 g/100mL TA and 3.2 - 3.4 pH in an average of 2,273 degree days. At these levels, Sulick believes he can produce Chardonnay with good varietal character and a forward appley nose with hints of spice and citrus flavors, all complemented by subtle use of oak.

"Our high acid levels provide a firm backbone which enhances the wine's ageing potential," states Sulick. "The fruit and oak components will continue to blend over the next 3 years to provide a complex, bottle-aged wine. Chardonnay ripens well in this region and bears a good crop with an average yield of 3.15 tons/acre. However, in some years, we do have a tendency toward high pH."

Grapegrowing

To ensure adequate ripeness of fruit, Sulick utilizes a training/trellising system which he describes as 'Modified Guyot Renewal'. The cane is bent over the second wire at a height of 32 inches and tied to the bottom wire at 24 inches. Shoots are positioned in two sets of catch wires. This concentrates fruit in the lower trellis position to facilitate spraying and picking. Vine spacing, 8x5 feet, results in 100% canopy fill. Rows are planted in a north-south direction to capture maximum sunlight.

In newer plantings, Crosswoods has experimented with spur-pruning and training to a horizontal, bilateral cordon. "So far, the vines have adapted well," says Sulick, "and we will continue to study this method relative to future plantings."

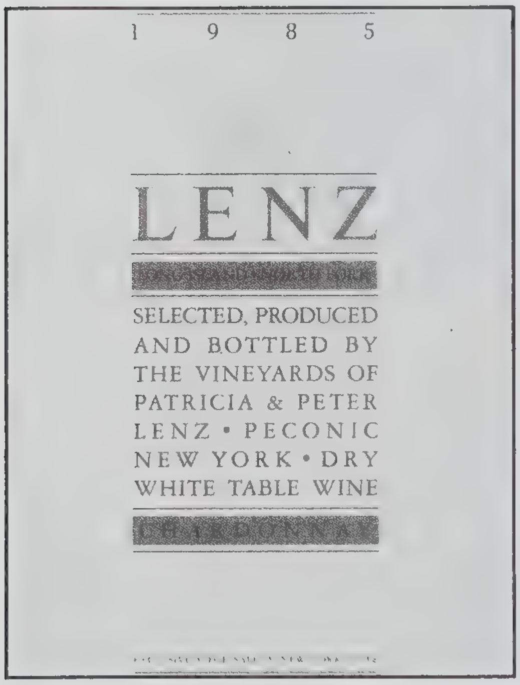
Winemaking

After pressing, 50 ppm SO_2 is added and the juice is settled for 36 hours prior to racking and inoculation with Pasteur Champagne yeast. Tank fermentation at 55–60°F lasts two weeks. In 1984, the wine was racked and transferred to new Center of France oak barrels for six months. In 1985, after barrel fermentation, the wine was left on light lees for several weeks.

Barrels are topped every 4–6 weeks and free SO_2 levels are kept at 40 ppm by additions at 3 or 4 rackings.

"We fine with a combination of 0.5 lb/1,000 gal gelatin and 1L/1,000 gal kieselsol to improve filterability," says Sulick. The wine received both a coarse and sterile filtration prior to bottling.

LENZ WINERY



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NEW YORK • DRY
WHITE TABLE WINE

CHARDONNAY

Gary Galleron

Gary Galleron, winemaker at Lenz Winery on the North Fork of Long Island, NY, strives for a clean, crisp, straightforward, varietally fruity wine with hints of oak. "I want the wine to have pear, apple, and pineapple aromas," states Galleron. "Straightforward winemaking techniques and quality fruit at about 21° Brix on average, about 1.1 g/100mL TA, and low pH, typically 3.2, help to achieve the Lenz style."

Grapegrowing

Grapes are purchased from Ressler Vineyard in Cutchogue (North Fork), on Long Island. Vines were planted in 1979 and spaced 6x9 at 100 feet elevation in a north-south direction. Vinewood came from the Finger Lakes, NY, region and was planted on three different rootstocks: SO4, 5BB, and 3309. Galleron states, "Unfortunately, the rootstock was intermixed without any identification as to which rootstock was which, so a clear-cut statement as to which rootstock works best is not possible."

Acidic (4.9–5.1 pH), sandy, silty, gravelly soil has a topsoil depth from 8–36 inches. Hudson River Umbrella, a high cordon system, is used for ease of training, low labor requirements, and excellent exposure of both fruit and canes to light. The trellis has 3 wires with the fruiting wire at 6 feet and the bottom wire at 3 feet.

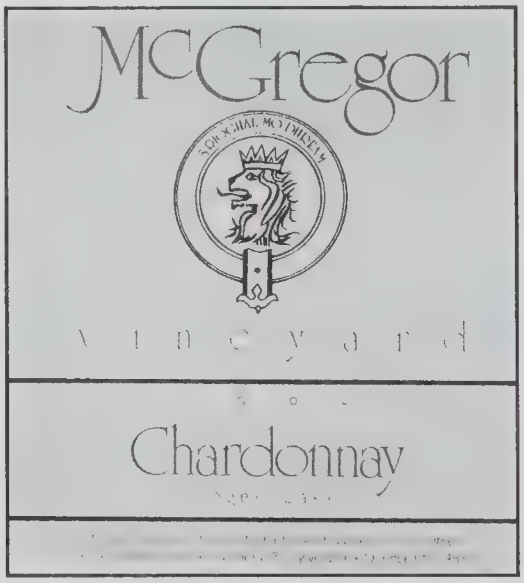
Some shoot positioning is done to encourage downward growth. The trellis fills to 90%, 3 layers deep. Crop size is controlled by balanced pruning (50 buds/vine) and some needed cluster thinning only if necessary to yield 2.8–3 tons/acre.

Winemaking

After addition of 50 ppm SO_2 at crush, pressed juice is settled 36 hours at 42°F before racking. At inoculation with Montrachet yeast, about 2% solids remain. Tank fermentation at 55°F lasts one month. Two weeks after reaching dryness, the wine is racked off, and bentonite, at 4.5 lbs/1,000 gal, is added. The wine is transferred immediately to French oak barrels and a second racking is done two weeks later.

Topping is done as needed and free SO_2 levels are maintained at 20 ppm during the 4-month barrel-ageing period. A 0.45μ cartridge is on the bottling line.

MCGREGOR VINEYARD



McGregor

vineyard

Chardonnay

Bob McGregor

"Cool fermentation (55–60°F) and ageing half the wine in a combination of Limousin and Nevers oak for 6 months produces the McGregor Chardonnay style," according to owner/winemaker Bob McGregor of McGregor Vineyard Winery, located on the east side of Keuka Lake in New York's Finger Lakes District.

"In youth, the wine has a subdued nose, medium body with good palate fruit, and lingering aftertaste," adds McGregor. "In 3–5 years, it develops a golden color with varietal fruit character showing in the aroma, on the palate, and through the finish–classic Burgundian style.

"Chardonnay from this region has a 10-year ageing potential. Its most outstanding quality is its finish, which is dry without a trace of bitterness. It complements baked Brie with toasted almonds, fish and fowl with light sauces, and crab-stuffed mushroom caps."

Grapegrowing

From 1973–1978, vines, spaced 9x7, were planted at 950–1,150 feet elevation with an approximate north-south row direction. The site is principally hillside with 10–12° slope and western exposure yielding 1.5–3.5 tons/acre, depending on the parcel and year. McGregor notes, "A slight northern tilt to the vineyard helps delay bud break and minimizes winter temperature changes." The upper site is clay with a heavy concentration of stone, low organic matter, and 2-foot topsoil depth. Lower portions are heavier clay with high organic matter and 7-foot topsoil depth.

McGregor used a variety of rootstocks, including 3309, Isabella, Concord, and Elvira. He states, "3309 gives more vigorous growth on the poorer, eroded hillside parcels, while the others give moderate vigor in the rich soil parcels."

McGregor vines have a 3–4 multiple trunk system trained to a 3-wire trellis. The bottom wire is at approximately 2 feet, the fruiting wire at about 4 feet, and the top wire is at about 5.5 feet. Vines are pruned to 60–80 buds/vine and the heavy canopy produced is cut back in late July or early August. Grape sugars reach 22–23° Brix almost every year, with 0.8–1.0 g/100mL TA and 3.1–3.3 pH.

Winemaking

Skin contact of 4–8 hours is given. Acid adjustments to juice may be made with tartaric acid. In 1985, 0.74 g/100mL TA was adjusted to 0.90 g/100mL TA. Juice is settled 24–48 hours and racked to less than 5% solids before inoculation with either Montrachet or Pasteur yeast. Thirty percent of the wine is tank-fermented at 55°F for 2–3 weeks, and the remainder is barrel-fermented. About half of the tank-fermented wine is racked into a combination of 1- to 3-year-old Limousin and Nevers oak barrels for 3–9 months.

Barrels are topped every 2–4 weeks, and free SO_2 levels are maintained at 20 ppm. The portion not barrel aged is kept in tank at 55°F until a final blend is made in late summer. The wine is bentonite-fined and filtered through 0.45μ pads before bottling.

NAKED MOUNTAIN VINEYARD

Bob Harper

Bob Harper, Naked Mountain's (Markham, VA) owner/winemaker, describes his style of Chardonnay as Burgundian. "You can make this style in Virginia," says Harper, "by picking at 3.3–3.5 pH levels and preventing malolactic fermentation. Both of these factors preserve fruitiness. Lees contact for about 6 weeks adds complexity. Chardonnay in this style complements oily fish such as salmon, swordfish, and tuna."

Harper predicts that his 1984 Chardonnay will peak in 1989 or 1990 and hold for three more years after that.

Grapegrowing

Naked Mountain's rocky vineyards, unsuitable for crops, have a slightly acid pH (5.5) with 6–10 inches of topsoil and rocky subsoil. They are located on the east side of the Blue Ridge Mountains, sloping south-southwest at 900 feet elevation with excellent air drainage. Vine rows are in an east-west and north-south direction.

Vines were planted between 1976 and 1980, spaced 6x12 on three different rootstocks: SO4, 5BB, and 3309. Harper states, "SO4 and 3309 are about the same, with 5BB slightly more vigorous. All three are more vigorous than I would like. Part of the problem is that we clean-cultivate and use no herbicides. I am considering planting the rows to turf.

"With 2,800–3,500 degree days on an annual average, we get ripe fruit, in the 21–23° Brix range and TA between 0.8–0.92 g/100mL. We use simple spur-pruning and bilateral cordon training with a modified Munson 3-wire trellis. The two top wires are at 6 feet and are 2 feet apart on a cross arm with the fruiting wire at 5 feet. This keeps labor costs down and rot levels low. With this, we average 2.5–3.5 tons/acre."

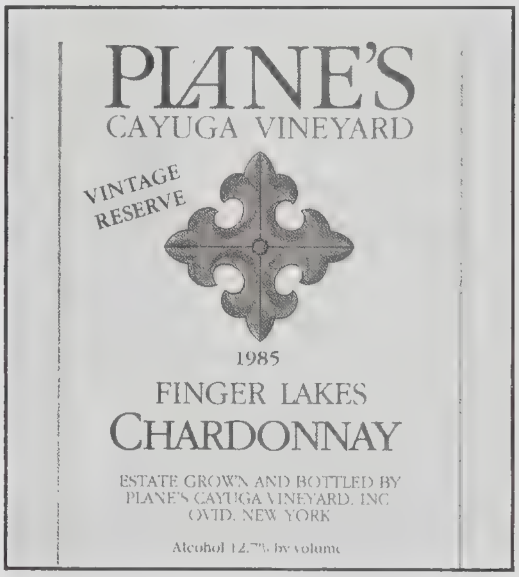
Winemaking

At crush, 100 ppm SO_2 is added. Juice is settled 24 hours at 35°F before racking and inoculation with Epernay II yeast. Tank fermentation to 12° Brix is done at 55°F. Juice is transferred to new Nevers oak barrels to complete fermentation.

First racking is done six weeks after fermentation. Barrels are topped every 2 weeks. Total barrel ageing is 6–7 months. The wine is medium DE-filtered before going to the bottling line with a 0.45μ cartridge.

PLANE'S CAYUGA VINEYARD

Bob Plane



Bob Plane, owner/winemaker at Plane's Cayuga Vineyard on the west shore of Lake Cayuga in New York's Finger Lakes District, states, "I want to maximize fruit character with French oak in the background. I strive for a wine that has a generous mouthfeel and clean finish from fairly high acid.

"As a young wine, Plane Chardonnay is crisp with good fruit and muted oak. In three years, its optimum maturity, more oak shows through in the taste and the wine is rounder and smoother.

"Our wine style will accompany any shellfish, French-style pate, Brie, and most fish or poultry preparations."

Grapegrowing

Above Lake Cayuga's western shore at 650 feet elevation, vines spaced 7x9 were planted in 1974. Plane used 3309 rootstock and planted rows in a north-south direction. He says that 3309 gives just the right vigor in the silt loam, high lime (6.8–7.2 pH) soil that has 2.5–4 feet of topsoil covering a limestone bedrock subsoil.

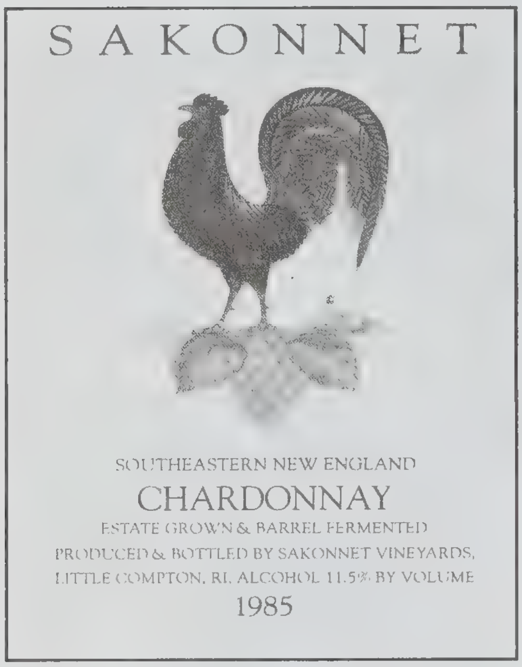
Vines are trained on a multi-trunk fan and 3-wire trellis. The bottom wire is at 1.5 feet with the fruiting wire at 3.5 feet, and top wire at 5.5 feet. Average yield is 3 tons/acre. A typical harvest window is 20–22° Brix, 0.90–1.0 g/100mL TA, and 3.1–3.25 pH. "We always pick before the acid drops below 0.90 g/100mL," claims Plane.

Winemaking

Juice is treated with 3–4 lbs/1,000 gal bentonite and settled 24 hours at 40°F before yeast inoculation and racking into French oak barrels for barrel fermentation. About 50% of the wine goes through malolactic fermentation. First racking is done in January and the wine is barrel-aged three more months.

Barrels are topped every two weeks, and free SO_2 levels are maintained at 20 ppm. The wine is sterile-filtered after cold-stabilization, and there is a 0.45μ membrane cartridge on the bottling line.

SAKONNET VINEYARDS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1985

Jim Amaral

Sakonnet Vineyard's (Little Compton, RI) winemaker, Jim Amaral, says, "I try to achieve more than just a clean, high-acid, fruity eastern Chardonnay. I attempt to make a complex, balanced wine through barrel fermentation, malolactic fermentation, ageing on the lees, and minimal handling."

Wine Style

"Upon release, our wine is slightly green on the palate," states Amaral. "It has a hint of oakiness, noticeable smokiness, moderate varietal character, and is well-balanced with a long finish. With ageing, it remains smoky, but develops layers of flavors from barrel fermentation and malolactic fermentation. It finishes silky with moderate acidity. I estimate 5–6 years' cellaring potential."

Amaral recommends the Sakonnet Chardonnay to accompany chicken with cream sauce, fresh broiled New England seafood such as cod, halibut, and scallops, or any mild cheese.

Grapegrowing

Sakonnet Vineyards sits between Narragansett Bay and Patchet Reservoir in Rhode Island at 200 feet elevation. Vines spaced 9x7 were planted in 1981 in north-south rows on SO4 rootstock and yield two tons/acre. Soil composition is Newport Stony Loam with 5.3 soil pH and topsoil depth ranging from 6–36 inches. Subsoil is sand leading to clay hardpan.

Fluctuations in winter temperatures, 20–45°F in a 24- to 36-hour period, are not uncommon. This encourages trunk cracking. "We, therefore, carry 2–4 trunks and spur low for renewals," says Amaral.

Vines are trained in a fan system to maximize sun exposure to the fruit. The bottom trellis wire is at 30 inches, fruiting wires at 38, 48, and 58 inches, and top catch wires at 66 inches. Vines are pruned to 50–60 buds/vine and shoot positioning is used to get sunlight to all parts of the vine. Some shoot thinning and hedging is done in July.

Amaral states, "We pick with a combination of low enough acid, 1.0–1.2 g/100mL, and high enough sugars, 18–21° Brix, and hope for 3.3–3.4 pH."

Winemaking

Grapes are crushed with the addition of 50 ppm SO_2 and 2 lbs/1,000 gal bentonite, followed by 8–12 hours skin contact at 55°F. If necessary, Acidex is used to bring the TA to 1.0 g/100mL. Juice is settled for 24 hours at 50–55°F, racked, inoculated with Chanson yeast, and fermented in a combination of 2-year-old Limousin and Nevers oak barrels. Fermentation completes in 10–21 days with peak temperature of 60–65°F, and 100% goes through malolactic fermentation, induced by inoculation with PSU-1.

First racking off yeast lees is done after 4–6 months of barrel ageing. Barrels are topped every two weeks, and, after completion of malolactic fermentation, SO_2 levels are adjusted to 50 ppm total and checked monthly.

After a rough DE filtration, the wine is cream-of-tartar seeded at 2 lbs/1,000 gal and cold-stabilized at 25°F for two weeks. The wine is medium-DE-filtered before sterile-pad filtration. A 0.45μ membrane is on the bottling line.

References

Winegrowing in Eastern America, Lucie T. Morton, Cornell University Press, Ithaca, NY, 1985.

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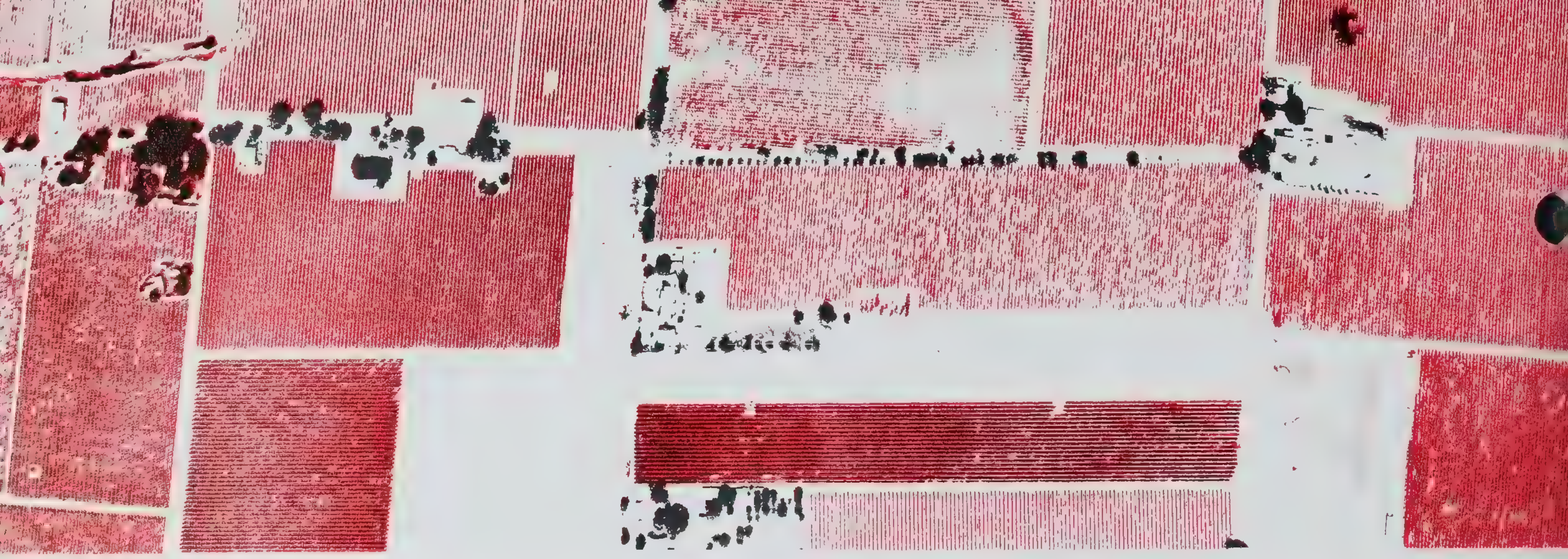
EASTERN CHARDONNAY WINEMAKING SUMMARY

WINERY	HARVEST CRITERIA	JUICE TREATMENTS	FERMENTATION LENGTH/TEMP. YEAST	MALOLACTIC FERMENTATION	FINISHED WINE TREATMENTS		FINISHED WINE STATISTICS
					FINING	FILTRATION	
Chaddsford Winery *Eric Miller*	19.5–22.5° Brix 0.85–1.0 TA 3.25–3.35 pH	30 ppm $S0_2$ 10g/ton pectic enzyme Skin Contact 0–5 hrs	5–7 days at 75–79 F Freeze-dried Epernay II	Partial natural	Bentonite	Medium-polish grade cellulose pads prior to bottling	0.54 TA 3.26 pH 0.3% r.s. 12.2% alcohol 35 ppm free $S0_2$
Chateau Grand Traverse *Mark Johnson*	19–20° Brix 1.0–1.4 TA 3.1–3.5 pH	Bentonite 5lb/1,000 gal Skin contact 12 hr at 55 F	2 weeks at 55 F Freeze-dried Epernay II	No	None	Medium pad filter off gross lees. Sterile pad at bottling.	0.74 TA 3.26 pH 0.3% r.s. 12% alcohol 30 ppm free $S0_2$
Crosswoods Vineyards *George Sulick*	21-22° Brix 1.0–1.2 TA 3.2–3.4 pH	50 ppm $S0_2$ after press Skin contact 0–2 hours	2 weeks at 55–58 F Freeze-dried Pasteur Champagne	No	0.5 lb/1,000 gal Gelatin and 1.0 lb/1,000 gal Kieselsol followed by bentonite if needed by heat stability test	Coarse and sterile prior to bottling	0.82 TA 3.31 pH 0.05% r.s. 12.5% alcohol 35 ppm free $S0_2$
Lenz Vineyards *Gary Galleron*	19–21° Brix 1.0–1.2 TA 3.1–3.2 pH	50 ppm $S0_2$ after press	1 month at 55 F Freeze-dried Montrachet	No	Bentonite at 4.5 lb/1,000 gal 2 weeks after dryness	0.45µ cartridge at bottling	0.87 TA 3.3 pH 0.05% r.s. 12.1% alcohol 27 ppm free $S0_2$
McGregor Vineyard Winery *Bob McGregor*	22–23° Brix 0.8–1.0 TA 3.1–3.3 pH	Skin contact 4–8 hours Acidify with tartaric acid from 0.74–0.90 TA	2–3 weeks at 55 F Freeze-dried Montrachet or Pasteur	No	Bentonite if required by heat stability test at 1–5 lb/1,000 gal	0.45µ before bottling	0.72 TA 3.1 pH 0.6% r.s. 12.8% alcohol 30 ppm free $S0_2$ 79 ppm total $S0_2$
Naked Mountain Vineyard *Bob Harper*	21–23° Brix 0.8–0.92 TA 3.30–3.35 pH	100 ppm $S0_2$ at crush	5 weeks at 55 F Freeze-dried Epernay II	No	Bentonite if required by heat stability test at 0.5–1.0 lb/1,000 gal	After cold stabilization medium DE 0.45µ at bottling	0.553 TA 0.1% r.s. 12.8% alcohol 50 ppm free $S0_2$ 105 ppm total $S0_2$
Plane's Cayuga Vineyard *Bob Plane*	20–22° Brix 0.9–1.0 TA 3.1–3.25 pH	Bentonite at 3–4 lb/1,000 gal	2 weeks Barrel fermentation yeast varies	50% natural	None	Sterile filter 0.45µ at bottling	0.78 TA 3.2 pH 0.% r.s. 12.7% alcohol 6.0 ppm free $S0_2$ 110 ppm total $S0_2$
Sakonnet Vineyards *Jim Amaral*	19–21° Brix 1.1–1.3 TA 3.3–3.4 pH	50 ppm $S0_2$ at crush Bentonite at 2 lb/1,000 gal Acidex to 1.0 TA Skin contact 8–12 hours at 55 F	10–21 days 60–65 F Liquid Chanson	100% induced with PSU-1	None	Rough & medium DE & sterile pad after barrel aging 0.45µ at bottling	0.72 TA 3.6 pH 0.% r.s. 11.5% alcohol 40 ppm free $S0_2$ 100 ppm total $S0_2$



Infrared Photography Aids Vineyard Management

Diane W. Mayfield

Flora Springs Winery, St. Helena, CA, has used color infrared aerial photography to assist in vineyard management, first in 1980 and again in 1986. "Aerial photography is a tool to help pinpoint potential and existing trouble spots," explains Pat Garvey, partner and vineyard manager.

"Any aerial photography," Garvey explains, "can do this to a certain extent, but the advantage of color infrared photography is that it highlights soil differences in addition to focusing on areas of decreased vine vigor.

"At Flora Springs, we use infrared photography to cross-check areas that may need better drainage. For instance, one area in one section of our vineyard appears as a much darker, deeper red than the surrounding areas. That darkness, from our experiences, indicates a wetter, heavier soil, so we have put in drain tiles to alleviate the problem."

Flora Springs' vineyards comprise 375 acres, 275 of which are on the valley floor between Oakville and St. Helena. There is also some hillside acreage on the west side of the Napa Valley, in addition to 75 acres in Pope Valley.

"Those soil highlights on the map can also aid us in making planting decisions," Garvey continues. "We make sure we take soil samples in the highlighted areas. Should those areas demonstrate soils too heavy with too much clay content, we may leave that part of our vineyard unplanted or locate a proposed reservoir there."

For those planning to purchase vineyard acreage, aerial photographs, especially infrared photographs, can aid one in making the best decision. Very dark or very light soils may indicate problem areas. That information, coupled with declining annual tonnage records, may alert the prospective buyer to additional costs after purchase of the vineyard.

Infrared photos can also point out old flood plains or areas where creeks used to flow. An undulating dark red line through a vineyard may indicate a past (and potential) flood plain. The vineyardist can then work with the Soil Conversation Service on flood control measures—*before* disaster strikes.

"The best time to take infrared photographs," Garvey notes, "is in July, on a clear day. By then, you have enough vine growth to delineate healthy vines from unhealthy vines. A cloudless sky is necessary to avoid cloud shadows appearing as dark spots in a vineyard. In infrared photos, the healthy vines appear bright red, with depleted or depressed areas a duller shade, or even straw-like in color.

"Different patterns of growth may indicate different problems. A circular area of depressed vines could show oak root fungus. Pierce's Disease or phylloxera often create an L-shaped region—the disease or virus usually starts in one area, and expands in a certain pattern rather than spreading out uniformly.

"Areas of vine sparseness at the edge of a vineyard, near a river, may indicate a Pierce's Disease hotspot. A closer look might suggest removing host plants for the blue-green sharpshooter such as blackberry or cocklebur." (*Grape Pest Management*, Division of Agricultural Sciences, Univ. of Calif., pg. 64)

Garvey emphasizes the importance of follow-up photography. Whether one uses black-and-white or infrared photography, soil and vine changes occur frequently in the vineyard, as well as in neighboring vineyards. Updating photos on a regular

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basis—Garvey updates photos approximately every five years—can help one determine how certain areas are responding to particular vineyard practices (i.e., fumigation, fertilization, and irrigation), and whether or not drain tile has corrected a wet spot.

"Another advantage of infrared photography," says Garvey, "is the ability to monitor a neighbor's problem area. It might be an economic benefit to find a solution to a mutual problem.

"Our photographs were taken by American Aerial Photography, a Sacramento-based firm. They use a Cessna 310 or Cessna 182, and shoot from an altitude that matches the size of the property. That is, if a property is one mile square, the plane's altitude is 5,280 feet. However, the altitude never drops below 1,000 feet.

"The cost of aerial infrared photography depends upon the size of the photographs. Enlargements are more expensive. You can save costs by combining one job in the Napa Valley with another job."

Howard Plumm of American Aerial Photography concurs with Garvey's assessment that combining jobs in a given area saves costs. "The flying charge is $175/hour," notes Plumm, "so the more jobs done at one time, the lower the cost will be for each party." In addition to the flying charge, there is a $50 mobilization charge.

Other expenses include exposures ($20 apiece for up to 10; $15 each for more than ten), a $15 shipping charge to deliver the film to a developer ("No one locally develops infrared photography," notes Plumm), and a $35 color balance charge. Plumm also emphasizes the need to find someone to analyze the photos. "Many of our customers," he says, "send their photos to UC Davis for analysis."

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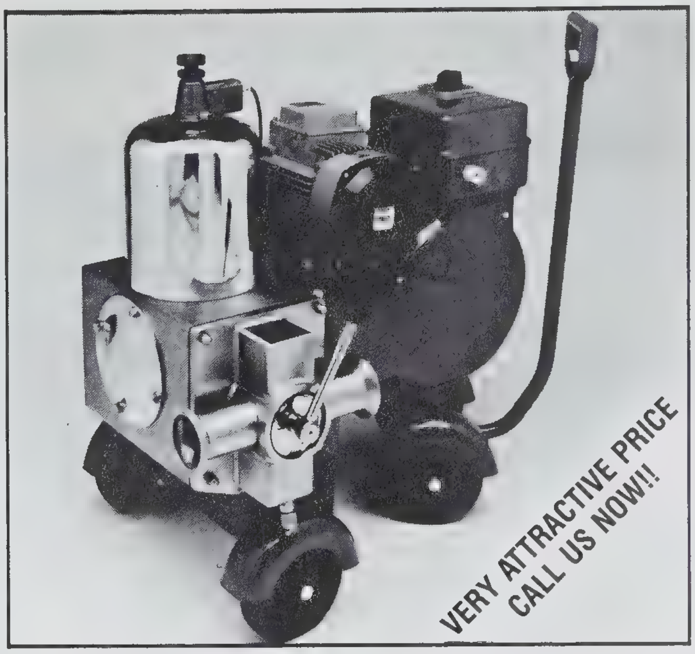

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Eastern Chardonnay Tasting Notes

Tasting Panel:
Bert Basignani, *Basignani Winery, MD*
Eleanor Heald, *PRACTICAL WINERY/VINEYARD*
Ray Heald, *PRACTICAL WINERY/VINEYARD*
Bob McGregor, *McGregor Vineyard Winery, NY*
Jim Mitchell, *Sakonnet Vineyards, RI*
Doug Moorhead, *Presque Isle Wine Cellars, NY*
Marlene Moorhead, *Presque Isle Wine Cellars, NY*
Dick Naylor, *Naylor Wine Cellars, PA*
Archie Smith III, *Meredyth Vineyards, VA*
George Sulick, *Crosswoods Vineyards, CT*
Dan Vernon, *Tewksbury Wine Cellars, NJ*

Winemakers interviewed were invited to submit a sample of Chardonnay. Wines are listed in the order in which they were tasted and discussed.

PRACTICAL WINERY/VINEYARD thanks the American Wine Society for providing tasting room facilities during the society's national conference in Baltimore, MD.

Chaddsford Winery, Pennsylvania (1983)

Comments before unveiling:

Sulick: I had trouble geting at the nose at first. Some fruit flavors on the tropical side. Balanced, but slightly hot in the finish.

Smith: Did anybody but me have a hard time with the SO_2 in it? It's in the nose and at the back of the palate.

Vernon: The SO_2 blows off in the aroma, but comes through in the finish.

Mitchell: It has a hot finish for its style, but otherwise it's well-balanced. Its aromas are particularly well-developed.

E. Heald: Should your comment about well-developed lead us to believe that this wine might be older than some of the others in this flight?

Mitchell: It could be, but not necessarily.

D. Moorhead: I found it fresh, with pleasant oak that doesn't dominate, but which comes on strong in the finish.

E. Heald: Are you saying that there was a loss of fruit in the finish with more oak coming through?

D. Moorhead: The oakiness is there, but doesn't overpower the fruit.

Color/Aroma: Pale straw/green. Well-developed, vanilla, oaky aromas; toasty, caramel, buttery bouquet; noticeable SO_2.

Flavors: Clean, but not pronounced; some tropical fruit; vanilla oakiness; lots of SO_2.

Balance/Finish: Balanced, but a slightly hot finish. Will improve with age. Good texture and body; medium long.

Plane's Cayuga Vineyard, New York (1985)

Comments before unveiling:

Vernon: The color is quite pale and it has a fruity, candy-cane nose not characteristic of Chardonnay.

McGregor: The aromas are atypical and I didn't perceive any lingering aftertaste.

E. Heald: Did anybody get a banana character?

Smith: I think what you're calling bananas is Dan's (Vernon) candy cane. This is probably a really cold-fermented wine and we are getting some isomyl acetate. The fruit seems quite green.

Mitchell: Does anybody think it will improve with time? I think this wine is very young and, like many eastern Chardonnays it will come together in the bottle.

Sulick: I believe the components will come together better with more age.

Comments after unveiling:

Smith: This is very unlike a Plane's Chardonnay.

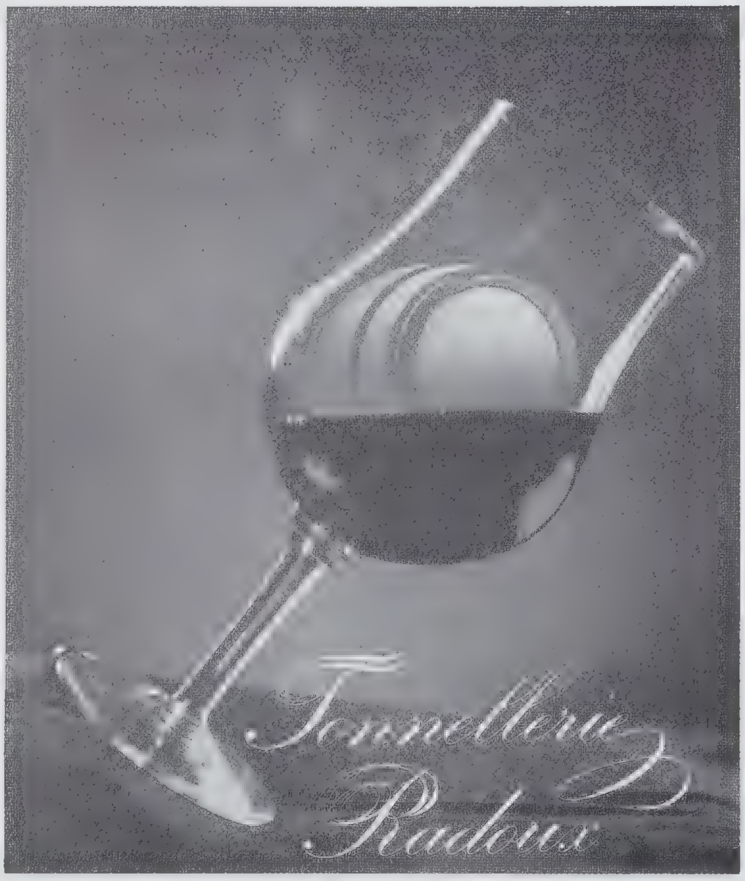
E. Heald: I can only tell you that at first Bob (Plane) was going to submit his 1984 bottling, then changed his mind because he liked the progress of the 1985. This wine has been bottled less than 3 weeks.

Mitchell: It's in bottle shock.

Color/Aroma: Very light, almost white. Citrus, oak, pineapple,

continued on page 29

Un grand plus!



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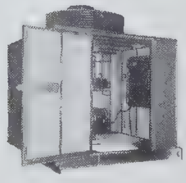
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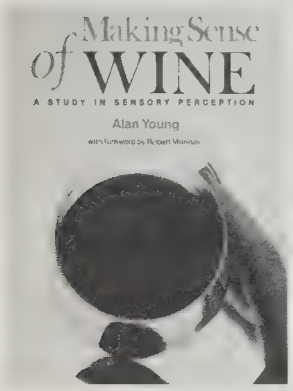

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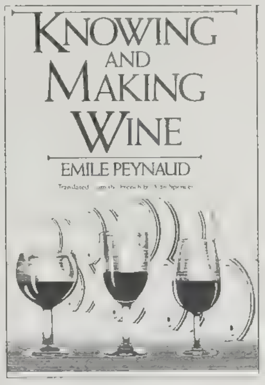

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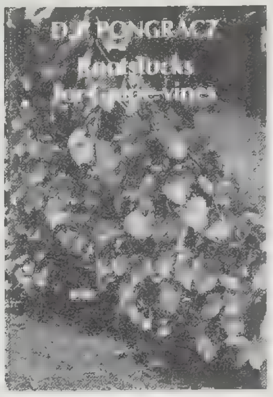

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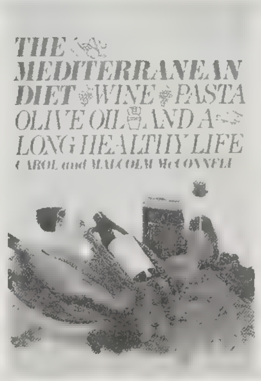
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continued from page 24

bananas, ripe melons.

Flavors: Apples, ripe melons; not fully developed; tart.

Balance/Finish: Medium body, good mouthfeel, well-balanced, but finishes a bit short and slightly astringent. Needs time to develop.

Naked Mountain Vineyard, Virginia (1985)

Comments before unveiling:

D. Moorhead: I find this to be the softest of the four wines in this flight. I'd guess it went through ML. The finish is smooth and easy.

McGregor: It was hard to define varietal aromas at first, but it opens up in the glass.

Smith: Of the four wines, this has the ripest fruit flavors. It is complex and multi-dimensional with pleasant toastiness.

Comments after unveiling:

Smith: The fruit is from a warmer climate than either of the first two. Bob (Harper) also barrel-ferments and gives it a fair amount of lees contact. From what I know of the production, the flavors and aromas that we've discussed are consistent.

Color/Aroma: Pale, straw-gold. Grapy, spicy fruit with some caramel; oak overtones dominate.

Flavors: Ripe fruit, oak, buttery, vanillins.

Balance/Finish: Long, round, balanced, flavorful. Soft finish. Will improve.

Crosswoods Vineyards, Connecticut (1984)

Comments before unveiling:

Mitchell: This is an atypical Chardonnay. It reminds me of a Sauvignon Blanc. The balance is good, but the finish is short and somewhat astringent.

Smith: How does grapefruit sound?

E. Heald: I'll buy that at the start, but go back now and it has lost most of the grapefruit character. There's more harmonious fruit quality with airing.

Mitchell: That fits right in with Sauvignon Blanc.

Smith: Green-fruit Chardonnay with pleasant oak treatment.

McGregor: I've discovered that Dr. Frank had a Muscat clone of Chardonnay. Hermann Weimer and I both have some and it also found its way to some Pennsylvania vineyards. If you tank-ferment those grapes, you get very strong overtones of citrus, particularly grapefruit. I think whatever vineyard this is has some of that clone.

Comments after unveiling:

Sulick: I agree on the citrus quality, but I don't identify it as grapefruit. The wine was aged for 7 months in new center-of-France oak.

Naylor: Do you have a high concentration of malic acid in your area?

Sulick: Yes.

Mitchell: All of us along the coast have high malic acid concentration—that's our biggest problem.

E. Heald: Do you know if you have any Muscat-clone Chardonnay that McGregor spoke of?

Sulick: I don't think so.

Color/Aroma: Pale straw/green. Grapefruit, grassy, muted fruit, apley hints.

Flavors: Intense grapefruit; slightly herbal, atypical, buttery, balanced oak, thin.

Balance/Finish: Green, more grapefruit, slight bitterness, full, acid on high side; thin; smooth, lingering aftertaste.

Chateau Grand Traverse, Michigan (1984)

Comments before unveiling:

D. Moorhead: I get a lot of tropical fruit.

Mitchell: It's a well-made wine—not dominating in any one area and comes together as a food wine. I also think it's very young.

Naylor: I get cotton candy.

McGregor: There's good follow-through of aromas to palate flavors.

Sulick: This is a different style than any we've tasted—maybe a different region.

Basagnani: There are no flaws in this wine. It only lacks concentration and focus at present. I think it's young and will come together in the bottle.

Color/Aroma: Straw/green. Apples, citrus, lemons; tropical fruit develops as wine warms; tight, cotton candy, fruity, honeyed fruit; some oak.

Flavors: Honeyed fruit, atypical; good follow-through of aromas to mouth flavors; caramel, mouthfilling.

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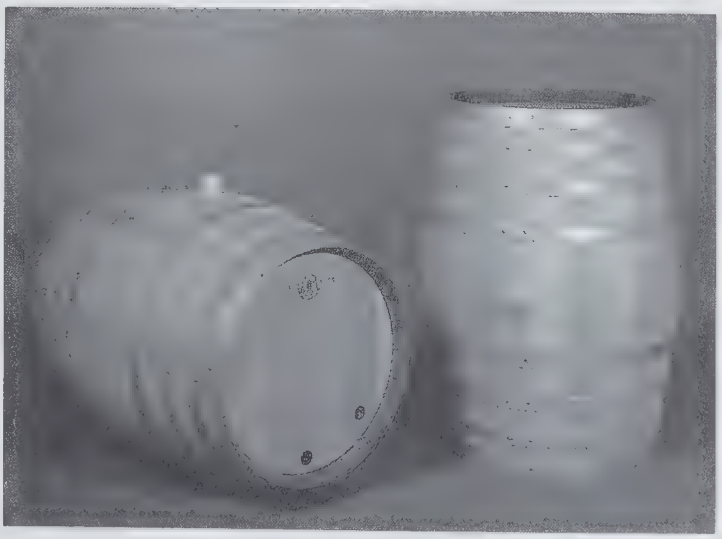

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Sakonnet Vineyards, Rhode Island (1985)

Comments before unveiling:

M. Moorhead: I got tobacco leaves in the nose. Oak dominates the taste and it does finish slightly astringent and bitter.

R. Heald: I agree with astringent, but I associate a toastiness rather than tobacco leaves.

Sulick: I think this wine had a sulfide problem.

Naylor: How about rubber boots?

Sulick: Not quite that far, but in that direction.

Smith: I think this wine had lots of lees contact. At first, I thought it was stinky, but now that it has been in the glass, you notice a toastiness that comes from lees contact. All that sulfide stuff blows off. It has really more going for it in the nose than in the mouth. It's lean on the palate and I expected more there given the complex aromas.

Comments after unveiling:

Mitchell: This is our first attempt at a 100% barrel-fermented Chardonnay. It was left on the lees about eight months.

Smith: Did you stir the lees at all?

Mitchell: No, but I should add that the fruit was underripe and it was not the best vinification technique for the low degree of ripeness.

Color/Aroma: Pale, straw/green. Lees-contact nose; slight caramel, oak, rubber boots; tobacco leaves. After 20 minutes' airing, any off-aromas disappeared.

Flavors: Caramel nose carries into taste; dominating oak, austere; not well-developed to balance; slightly green.

Balance/Finish: Lingering, balanced, clean, long, smooth; somewhat bitter, slightly astringent.

McGregor Vineyard Winery, New York (1985)

Comments before unveiling:

Vernon: I get a slight off-taste that I can't identify and some bitterness in the finish.

D. Moorhead: I'd call it metallic bitterness.

Mitchell: I get an atypical aroma—not what I expect from Chardonnay.

Sulick: I don't agree. It has tropical fruit that I associate with Chardonnay, but it is thin.

Smith: It has green-fruit character—apples in particular. It also has what I call a phenolic smell. When I get that, I just expect the wine to taste bitter and it usually does. I find that you get this when the winemaker puts in SO_2 at the crusher rather than waiting until after it's pressed. When you press with SO_2 in there, you extract a lot more of the low molecular weight phenols that give it that bitter character. That inhibits the taster from getting at the basic wine.

Comments after unveiling:

McGregor: The grapes were ripe. We picked at 22.8° Brix. There was partial barrel fermentation. SO_2 was not added until after fermentation completed. This is not atypical of what we've done in the past. Characteristically, our Chardonnay does not show well until it has had two or three years in the bottle. This wine has only been in the bottle about a month.

Smith: Age will definitely make much of the bitterness disappear.

Color/Aroma: Pale, straw/green. Apples, tropical fruit; atypical aromas; neutral, citrusy.

Flavors: Green apples, light oak, clean, sharp; pleasant fruit.

Balance/Finish: Vanillins showing; harsh, slightly hot; needs time to develop; moderate finish; good food wine.

Lenz Vineyards, New York (1985)

Comments before unveiling:

Smith: There's so much to this wine. The nose is multi-dimensional with vanilla, grapy and tropical fruit. The whole wine hangs together very well. Perhaps the acid is a bit low, but far and away, it is the best wine of the bunch.

Vernon: I agree with that entirely.

Mitchell: This is not what I'd like to hold up as typically eastern Chardonnay. It is a different style, but I like it.

Color/Aroma: Medium straw. Vanilla, ripe fruit; tropical fruit; tight, earthy, oaky, toasty.

Flavors: Citrus, ripe grapefruit; well-developed fruit; coconut, toasty oak; well-composed, complex, buttery.

Balance/Finish: Citrusy, medium body; good finish; not fully developed; varietal flavors increase in finish.

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PRACTICAL
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1987
Salary Survey

PART 1

Don Neel, Editor

This is the first *PRACTICAL WINERY/VINEYARD* Wine/Grape Industry Salary Survey. We received almost 250 responses from throughout the United States to a questionnaire mailed to over 400 subscribers in June, 1987. While this is not a definitive survey, we feel the following information provides a representative sampling of salaries in the wine industry.

Job titles queried included Winery Manager, Winemaker, Assistant Winemaker, Cellarmaster, Cellar Worker, Lab Supervisor, Quality Control Inspector, Vineyard Manager, and Vineyard Supervisor. Respondents work for wineries with production ranging from under 10,000 cases to over 200,000 cases.

This installment of our survey reports on winery salaries, categorized by job function and winery production capacity. Part II (Nov/Dec 1987) will report on non-salary benefits such as health, dental and life insurance; paid vacations; deferred compensation (stock options, pension and/or profit-sharing plans); and additional benefits (house, car, expense accounts).

Winery Managers

Twenty-four winery managers (three women and 21 men) responded from the following areas: 20 from California (13 in northern California) and four from outside California. Fourteen have completed a four-year college program and another six have done graduate work. Ten receive a bonus in addition to their salary. Salaries break down as follows:

The three managers of wineries under 10,000 cases/year receive, respectively, $20,000, $27,000, and $40,000/year. The four managers of wineries between 10,000 and 50,000 cs/yr receive, respectively, $30,000, $32,000, $45,000, and $65,000/year. The four managers of wineries between 51,000 and 100,000 cs/yr receive, respectively, $33,000, $39,000, $40,000, and $54,000/year.

The thirteen respondents managing production over 200,000 cs/yr are divided as follows:

3 – $30,000 ~ $40,000
5 – $41,000 ~ $50,000
3 – $51,000 ~ $65,000
2 – $66,000 ~ $80,000

Winemakers

In the winemaker job category, we received 17 responses (two females and 15 males) from wineries under 10,000 cs/yr. Thirteen are from northern California. Eight have completed a four-year college program and another seven have done graduate work. Seven receive a bonus in addition to their salary. Salaries are as follows:

4 – $20,000 ~ $25,000
5 – $26,000 ~ $30,000
3 – $31,000 ~ $35,000
3 – $36,000 ~ $40,000
2 – $41,000 ~ $56,000

There were 26 responses from winemakers responsible for production between 10,000 – 25,000 cs/yr (four females and 22 males). Twenty-two are from California (12 in northern California) and four from outside California. Sixteen have completed a four-year college program and another six have done graduate work. Fourteen receive a bonus. The salaries are distributed as follows:

4 – $18,000 ~ $20,000
7 – $21,000 ~ $25,000
6 – $26,000 ~ $30,000
5 – $31,000 ~ $35,000
2 – $36,000 ~ $40,000
2 – $41,000 ~ $68,000

Winemakers responsible for production between 26,000 – 50,000 cs/yr accounted for 25 responses (one female and 24 males). Twenty-one are from California (16 in northern California) and four are from outside California. Fourteen have completed a four-year college program and nine more have done graduate work. Fifteen receive a bonus. The salaries are distributed as follows:

4 – $20,000 ~ $25,000
1 – $26,000 ~ $30,000
2 – $31,000 ~ $35,000
7 – $36,000 ~ $40,000
4 – $41,000 ~ $45,000
4 – $46,000 ~ $50,000
3 – $51,000 ~ $88,000

There were 18 responses from male winemakers responsible for production between 51,000 – 100,000 cs/yr (13 in California, including 11 in northern California, and five outside California). Nine have completed a four-year college program and seven more have done graduate work. Thirteen receive a bonus. The salaries are distributed as follows:

5 – $30,000 ~ $35,000
4 – $36,000 ~ $40,000
2 – $41,000 ~ $45,000
5 – $46,000 ~ $55,000
3 – $56,000 ~ $86,000

Six male winemakers responsible for production between 101,000 - 200,000 cs/yr responded from California, with four in northern California. Four have completed a four-year college program and another two have done graduate work. Only one receives a bonus. Three salaries are between $30,000 – $35,000 and three are between $45,000 – $55,000.

Twenty winemakers responsible for production over 200,000 cs/yr responded (five females and 15 males). Seventeen are in California (nine in northern California) and three are outside California. Thirteen have completed a four-year college program and another six have done graduate work. Ten receive a bonus. The salaries are distributed as follows:

5 – $28,000 ~ $35,000
4 – $36,000 ~ $40,000
3 – $41,000 ~ $45,000
3 – $46,000 ~ $50,000
2 – $51,000 ~ $60,000
3 – $61,000 ~ $75,000

Assistant Winemakers

Forty assistant winemakers responded (7 females and 33 males). Thirty-seven are in California (26 in northern California) and three are outside California. Twenty-five have completed a four-year college program and 12 more have done graduate work. Nineteen receive bonuses. The salaries are distributed as follows:

10,000–25,000 cs/yr:
3 – $18,000 ~ $23,000
26,000–50,000 cs/yr:
3 – $13,000 ~ $25,000
3 – $26,000 ~ $40,000
51,000–100,000 cs/yr:
5 – $18,000 ~ $25,000
4 – $31,000 ~ $45,000
101,000–200,000 cs/yr:
2 – $19,000 ~ $30,000
3 – $31,000 ~ $35,000
2 – $36,000 ~ $40,000
1 – $70,000
Over 200,000 cs/yr:
6 – $22,000 ~ $30,000
3 – $31,000 ~ $35,000
2 – $36,000 ~ $40,000
2 – $41,000 ~ $45,000

Cellarmasters

Sixteen cellarmaster responses were received (one female and 15 males). Fifteen are in California, including 11 in northern California. Five completed a four-year college program, one other did graduate work. Seven have high school diplomas, and three attended junior college. Four receive bonuses. The salaries are distributed as follows:

10,000–100,000 cs/yr:
2 – $15,000 ~ $26,000
3 – $29,000 ~ $30,000
101,000–200,000 cs/yr:
1 – $10,000
2 – $28,000 ~ $30,000
2 – $33,000 ~ $44,000
Over 200,000 cs/yr:
4 – $30,000 ~ $35,000
2 – $36,000 ~ $41,000

Cellar Workers

Thirteen cellar workers responded (two females and 11 males). All but one is from northern California. Two are college graduates while nine have high school diplomas and two attended junior college. Seven receive bonuses and their salaries are distributed as follows:

10,000–25,000 cs/yr:
1 – $17,500
26,000–50,000 cs/yr:
4 – $19,000 ~ $24,000
100,000–200,000 cs/yr:
2 – $12,000 ~ $18,000
3 – $26,000 ~ $30,000
Over 200,000 cs/yr: 3 – $20,000 ~ $24,000

Lab Supervisors

Twenty-two lab supervisors responded (12 females and 10 males). Twenty-one are from California, including 16 in northern California. Fourteen completed a four-year college program and seven have done graduate work. Ten receive bonuses. The salaries are distributed as follows:

10,000–50,000 cs/yr:
2 – $22,000 ~ $30,000
51,000–100,000 cs/yr:
3 – $17,000 ~ $30,000
101,000–200,000 cs/yr:
4 – $30,000 ~ $39,000

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Over 200,000 cs/yr:
5 – $18,000 ~ $25,000
3 – $30,000 ~ $35,000
5 – $36,000 ~ $42,000

Quality Control Inspectors

Two quality control inspectors (one male, one female) responded from northern California. One has completed college while the other has done graduate work. One receives a bonus. The salaries are $20,000 in a 100,000–200,000 cs/yr winery and $39,400 in a winery over 200,000 cs/yr.

Vineyard Managers

Twelve male vineyard managers responded, including eleven from California (eight are from northern California). Five completed college and four others did graduate work. Three completed high school and one attended junior college. Five receive bonuses. The salaries are distributed as follows:

Under 10,000 cs/yr: 1 – $16,000; 1 – $25,000.
10,000–25,000 cs/yr: 1 – $22,000; 1 – $30,000; 1 – $46,000.
26,000–100,000 cs/yr: 1 – $30,000; 1 – $34,000.
101,000–200,000 cs/yr: 1 – $36,000; 1 – $60,000.
Over 200,000 cs/yr: 1 – $35,000; 1 – $48,000; 1 – $100,000.

Vineyard Supervisors

Five male vineyard supervisors responded from California (four from northern California). Four finished college and one did graduate work. Four receive bonuses. The salaries are distributed as follows:

10,000–25,000 cs/yr: 1 – $22,000
Over 200,000 cs/yr: 3 – $25,000 ~ $35,000
1 – $50,000

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Don Blackburn

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According to the French approach, the pivotal event in the grape's ripening process is the *arrêt de croissance,* whose literal

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English translation is 'growth stoppage'. This occurrence accompanies veraison within several days, and announces important changes in the vine's physiology.

Terminal and lateral buds become dormant. Acids, which have accumulated progressively until then, begin to be depleted by respiration. The vine shifts more of its attention to grape ripening, whereas the process had hitherto been impeded by its competition for resources with the vine's expanding foliage.

The date of growth stoppage is influenced by various factors. Lower vigor hastens the event, while low-to-moderate vigor tends to place it late enough to afford adequate foliage, and early enough for complete ripening.

Excluding rare situations of extreme genetic decadence or devastating disease, it is rare in Burgundy that vigor is so low that growth stoppage occurs before the vine has produced sufficient foliage. In this context, a general rule applies: The earlier the growth stoppage, the more likely the crop is to achieve proper ripeness.

In the best vintages, growth stops between July 15 and August 5; in average years, August 5–10; in poor years, August 10–15. Significantly, by the latter half of August, temperatures are lower than those needed for optimum photosynthesis.

Furthermore, the days are short enough to compromise lignification, which is the transformation of green tissue into woody tissue capable of surviving the winter. The vineyard manager notices growth stoppage when the leaves at the end of the cane grow over the tip, giving it a domed appearance.

Second Sap

Occasionally, a vine's laterals are stimulated into growth well after the *arrêt de croissance*. This *deuxième sève* (second sap) slows ripening by diverting resources away from the grapes. It favors bunch rot by crowding the foliage. It also lessens winter hardiness by slowing lignification.

Experience shows that high vine vigor encourages 'second sap', as does the application of synthetic fungicides. The 'Bordeaux Mixture', copper sulfate neutralized with slaked lime, has been used for a century to control downy mildew. Over the last two decades, it has been progressively replaced by modern chemicals of greater persistence.

In a remarkable about-face, some growers are now returning to the 'Bordeaux Mixture' in recognition of its moderation of vine vigor and suppression of second sap. These roles seem to result from its slightly caustic effect on green tissue. This would be an interesting topic of study in regions where high vine vigor has led growers to take steps to 'devigorize' the vine.

Burgundians know that if high doses of the 'Bordeaux Mixture' are applied and not rained off, they can persist until harvest and have a somewhat inhibitory influence on fermenting yeast. The recommended dose is 2%. It is also noteworthy that the use of copper in viticulture may explain why reduced sulfur in wine is so much rarer in France than in the U.S.

I.N.R.A. Branch in Beaune

Beaune's Enological Station houses a branch of the National Institute for Agronomical Research (I.N.R.A.). It thus combines two mutually supportive elements: 1) access to information from I.N.R.A. stations in other regions, and 2) a singularity of focus on the problems of Côte d'Or. This status gives its research a high degree of relevance.

Unlike some research centers in other parts of the world, it is not dependent on the parochial interests of those who furnish grant money. In fact, a portion of its income is derived from wine analyses done for growers in the region. Moreover, when growers bring in their samples, they often ask the technicians for advice. This exchange furnishes a continual influx of information which keeps enology in contact with the real needs of the winemaker.

Over the last 50 years, directors of the Enological Station have been admired (and sometimes controversial) figures in the eyes of the winegrowing community. They regularly visit cellars for consultation, and teach classes at Beaune's School of Viticulture. The director of the Station thus unites the roles of professor, researcher, and consultant.

Every generation of growers in this century has known and looked up to a *Grand Monsieur* whose scope of vision came

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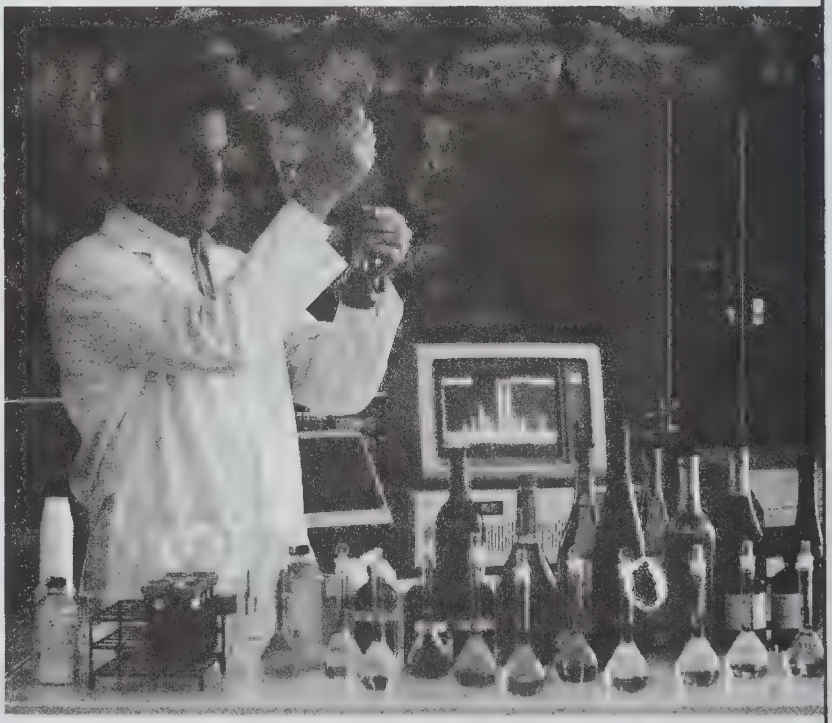

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from years of study followed by decades of wrestling with the issues of applied research and practical winemaking. This situation, which exists in most of France's Grand Cru regions, is certainly a great attribute.

Late-Season Weather

Some California growers have indicated that a cold night during the growing season will inhibit photosynthesis the following day. This phenomenon seems applicable in Burgundy, where the last few nights before harvest can be cool enough to slow ripening to 5–10 g/L (0.5 - 1.0° Brix)/week.

Many French growers feel that their wines benefit from a slowed maturation at the end of the cycle. They cite no concrete evidence to support this idea, but they observe that late-season heat waves seem to be detrimental to a wine's balance, and can yield 'cooked' flavors. This result can be tasted in some 1976 red and white Burgundies. This notion does not rule out occurrence of vintages in which the season's weather warms up from cool to moderate in time for a sunny September to bail it out.

Concept of Ripeness

The French offer no unanimous definition of a ripe grape. It is instructive to look at accounts which offer a historical perspective. For example, near the end of the 18th century, Tainturier wrote,"One should not wait for all the grapes to reach the same stage of maturity. One needs ripe grapes, roasted grapes, and green grapes."

Tainturier was the abbot of Clos Vougeot, and the major chronicler of his period of Burgundy's viticultural history. We can infer from his comments that vineyards in Côte d'Or often experienced a broad spread in flowering date. We can further presume a high degree of genetic diversity within Pinot Noir and its derivatives. These diverse strains would tend to ripen unevenly. They had to be picked together because they were interplanted at random, rather than in separate plots. It made the choice of a harvest date particularly tricky.

The term 'strain' is more appropriate in most common uses than the word 'clone', which implies an actual genetic parentage. When one mentions the 'Wente Clone', one is referring to

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a strain or even a number of strains, each of which is defined by a group of physical characteristics. One can distinguish between strains visually, but clonal differentiation is a matter of genes.

Viticultural literature contains references to specific ripeness criteria, suggesting that vignerons did not just wet a finger and hold it up in the wind. In his highly influential 1868 work, *Le Vin*, A. de Vergnette Lamotte described the "signs from which we recognize the complete maturity of the grape. It detaches easily from the stem. When plucked, it leaves behind a 'string', purple-pink in color, which gets longer as the maturity advance.

"The grape itself is flat blue-black. The bloom which covers it is persistent. The seed is dark-green, brownish at its top. When crushing the grape skin between one's fingers, one finds that, at ideal ripeness, it is thinner than several days before. One finds one's fingers substantially stained afterwards. These criteria are applicable to all black varieties grown in Côte d'Or. Their validity in other regions must be demonstrated individually."

The earliest juice analysis, aside from the organoleptic exam, may well have been a test comparing the density of a must with that of a fresh egg floating or sinking in it.

Harvest Date

Since the 12th century, the official start-of-harvest date is called the *Ban de Vendanges*. Growers were legally forbidden from picking before then. The assumption was that, in the absence of controls, many growers would pick earlier than they should. Wine quality would then be influenced to the point that the entire region would suffer.

Each town would choose a panel of growers and one employee/vigneron to visit the vineyards three times with the local magistrates to set that town's date. For convenience of paperwork and enforcement, the officials liked to group adjacent villages under one date: *e.g.*, Ladoix, Aloxe, Pernand, Savigny–Sept. 25; and Beaune, Pommard–Sept. 23.

The Abbot Arnaux wrote in 1728, "Before the chosen date, no person may pick even a basket of grapes on pain of confiscation and heavy fine . . . The danger is that if everyone followed his preference, some would make wines too 'green' which, exported to other countries, would dishonor Burgundy and discredit its wines."

During certain periods, the *Ban de Vendanges* was not observed or enforced. But as soon as economic or viticultural problems arose, growers would call for reapplication of the regulations. Nowadays, the *Ban* is little more than a tradition, or a formality at best. But the government combats excessive haste in another way. It requires that A.O.C. wine grapes (anywhere in France) achieve a *degré minimum* before being picked.

The required level for reds ranges from 9° Gay-Lussac (G.L.)–or potential alcohol–for the regional appellation *bourgogne* to 11.5° G.L. for the Montrachet family of Grands Crus, and 12° G.L. for Corton-Charlemagne. (Assume 18 g/L of sugar for 1 degree G.L. in reds, and 17 g/L in the whites. The red/white difference is explained by the greater alcohol loss during the warmer red fermentation.)

From these legal minima, conscientious growers hope to wait longer and get as far as 11.5° G.L. or so in the reds, or better yet in the whites. In a warm year, some Chardonnay and a few Pinots will come in above 13° G.L. (13 x 17g/L = 221g/L = 22.1° Brix).

Grape Pickers

Many pickers in Burgundy are not migrant workers, but students who take a couple of weeks at the end of the summer to pick grapes and make some money to replace what they just spent on the Riviera. Côte d'Or lies directly on the Autoroute from Nice to Paris. Their enthusiasm adds to the festive feeling of harvest time.

When the harvest progresses, and the students' backs get tired, they find it difficult to keep up with the rest of the harvest workers. Most of these are local folks who use part of their annual vacation time to help pick and thus supplement their regular income. They usually work for the same grower every year, and become quite skilled.

The dexterity and stamina of the women make them the shock troops of the picking crew. They leave medical students in their wake. Some women will help the grower's wife prepare food to feed the crew. The men carry lug boxes, drive tractors, and punch caps. Vignerons find it extremely helpful to have such loyal and expert harvest help. More than one grower must have reflected near the end of his life that his most intimate friends were the truck driver and factory worker who were only in town once each year.

Picking Methods

Whereas Californians count a ton or more per picker/day, the French standard is about one barrel of wine per picker—less than half the California average. The standard Burgundian harvest method calls for one picker/row, using pointed shears and a small bucket. The crew advances as a line abreast, stopping periodically to pass full buckets to the center row for evacuation. The middle picker is a strong worker who assists the *porteur.* The fast pickers will help adjacent slower workers so that the line maintains its continuity.

The *porteur* is responsible for carrying from the center row (centered on the crew) to the trailer by one of two methods. He may carry on his back a hod, into which his assistant will dump the picking buckets. The *porteur* will then pitch the grapes over his shoulder into the *balonge*, a large wooden tub set on the trailer, drawn by the tractor. At the vat house, the grapes will be transferred by pitchfork into the crusher.

The alternative method has the *porteur* transporting the grapes in large lug boxes carried on his shoulder and stacked on the trailer. At the winery, two men will pour the boxes from the trailer bed into the crusher-stemmer. This method is more labor-efficient than pitchforking out the *balonge*, but less so than the self-emptying gondola. The stacked boxes minimize damage to the grapes during transport, but they decrease the volume carried per load (compared to the gondola).

Mechanical Harvesters

Côte d'Or has a few mechanical harvesters, and will have more. The technology exists to machine-harvest grapes in a meter x meter vineyard, and is gaining acceptance. Some vignerons feel that machine-picked grapes yield white musts with more suspended solids, and which have more difficulty clarifying. Some Pinot Noir producers criticize the mechanical harvester's inability to gather the stems along with the berries. This is a minority view, because many or most growers now vinify Pinot Noir without stems.

Nineteenth-century growers often crushed grapes down to make extra room in the *balonge* for more grapes by walking on them periodically during picking. Crusading directors of the Enological Station spent 50 years breaking this habit. Today, growers remember the lessons learned, and try to baby the grapes until the very moment they go into the crusher. They look at what the machine does to the grape and say, "My father would have had a stroke if I had brought in grapes that looked like that." In this sense, the current American trend toward juice oxidation most closely parallels Burgundian winemaking before the advent of modern enology.

Many vignerons now find that pickers from outside the region are increasingly unreliable, unruly, and unwilling to work hard. The growers who pamper their pickers tend to get the most and the best applicants. They will resist the machine. They will also continue to house and feed their pickers, share all meals communally, and view the harvest period as a festive annual event of hard work, renewed friendship, song, and camaraderie. The word 'crush' captures neither the spirit nor the reality of the Burgundian harvest.

Due to limited number of varieties and microclimates, most Burgundian harvests last only 10–14 days. As a result, it is almost over before the fatigue starts to nag. Many growers fill each fermenter only once, so there is less pressure to maintain a hectic pressing schedule. As hard as the work is, there always seems to be time at 9:00 p.m. to visit the neighbor and see how his fermentations are going.

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Winery Accounting: An Introduction / Sect#872E25
Instructor: L. Gregory Scott, CPA, senior tax manager, Price-Waterhouse, San Francisco, CA. **Dates/Hours:** Thursdays, 7:00-9:30 pm, Oct. 1–Dec. 3, 1987 (no class Nov. 12, 26). **Location:** Montgomery High School, Room 28, 1250 Hahman Dr., Santa Rosa, CA. **Fee:** $190 / Pre-enroll by Sept. 24 / non-credit.

Introduction to Wine Chemistry / Sect#872E06
Instructor: Clark Smith, winemaker–R.H. Phillips Vineyard, CA. **Dates/Hours:** Wednesdays, 7:00-9:00 pm, Oct. 28–Nov. 25, 1987. **Location:** University Extension Center, Orchard Room, Extension Center Drive (off Hutchison), UC Davis – Davis, CA. **Fee:** $90 includes all materials / Pre-enroll by Oct. 21.

Grape Disease Management and Identification / Sect#872E28
Instructors: Doug Gubler, PhD, specialist, Cooperative Extension and Jim Marois, PhD, asist.professor, Plant Pathology, UC Davis. **Date:** Thursday, 9:00am-4:00pm, Oct. 29, 1987. **Location:** Same as Sect#872E06. **Fee:** $70 includes instructional materials / Pre-enroll by Oct. 22 / non-credit.

Legal Aspects of Establishing a Winery / Sect#872E21
Coordinator: Debbie Keil, attorney, Pillsbury, Madison & Sutro, San Francisco, CA. **Date:** Friday, 8:30am-4:30pm, Oct. 30, 1987. **Location:** Faculty Club, Clubroom II, Old Davis Road, UC Davis – Davis, CA. **Fee:** $90 includes lunch / Pre-enroll by Oct. 23 / non-credit.

Introduction to Wine Analysis / Sect#872E04
Instructor: Ted Miller, cellarmaster, Dept. of Viticulture & Enology, UC Davis. **Date:** Saturday, 8:00am-5:00pm, Nov. 7, 1987. **Location: Room 103, Enology Building, UC Davis – Davis, CA. Fee:** $100 includes all lab supplies / Pre-enroll by Oct. 30 / non-credit.

Taxation and Accounting for the Small Vineyard / Sect#872E02
Instructor: Same as Sect#872E25. **Date:** Thursday, 9:00am-4:00pm, Nov. 12, 1987. **Location:** same as Sect#872E21. **Fee:** $90 includes materials + lunch / Pre-enroll by Nov. 5 / non-credit.

Taxation and Accounting for the Small Winery / Sect#872E03
Instructor: Same as Sect#872E25. **Date:** Friday, 9:00am-4:00pm, Nov. 13, 1987. **Location:** Same as Sect#872E21. **Fee:** $90 includes materials + lunch / Pre-enroll by Nov. 6 / non-credit.

Selling Wine in Southern California / Sect#872E23
Coordinator: Ray Wilson, sales vice president, Vintage House, Huntington Park, CA. **Date:** Saturday, 9:00am-4:30pm, Nov. 21, 1987. **Location:** El Rancho Tropicana, Rainbow Room, 2200 Santa Rosa Ave, Santa Rosa, CA. **Fee:** $120 includes lunch / Pre-enroll by Nov. 13 / non-credit.

Marketing Your Winery: Creating, Maintaining and Changing an Image / Sect#872E22 **Coordinator:** Travis Fretter, Fretter Wine Cellar, Berkeley, CA. **Date:** Saturday, 9:00am-4:30pm, Dec. 5, 1987. **Location:** Embassy Suites, 1075 California Blvd, Napa, CA. **Fee:** $100 includes lunch / Pre-enroll by Nov. 25 / non-credit.

Current Topics in Wine Grape Pest Management / Sect#872E27
Coordinator: Richard Nagaoka, viticulturist, St. Helena, CA. **Date:** Tuesday, 9:00am-4:00pm, Dec. 8, 1987. **Location:** Same as Sect#872E06. **Fee:** $55 includes instructional materials / Pre-enroll by Dec. 1 / non-credit.

For further information and to enroll by telephone using your Visa or MasterCard call toll-free in California (800) 752-0881. Davis and Dixon or out-of-state residents call (916) 752-0880.

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January 12-15, 1988

Second International Symposium for Cool Climate Viticulture / Enology

The New Zealand Society for Viticulture and Oenology invites winemakers, grapegrowers and others involved in wine production and marketing to attend the Second International Symposium at the Kingsgate Center, Auckland, New Zealand.

The symposium will concentrate on quality wine production from classical grape varieties in cool regions, organic viticulture, assessment of winegrape quality, wine and history, and wine marketing. There will be 22 keynote speakers and more than 75 papers. Speakers are representing the follwing grapegrowing regions of the world:

Australia: Canberra, New South Wales, South Australia, West Australia, and Victoria; Canada: British Columbia, and Ontario; England; France: Bordeaux; Germany; Italy; New Zealand; South Africa; Switzerland; United States: California, Michigan, New York, Oregon, Virginia, and Washington.

The proceedings will be pre-published and available at the Symposium. The main theme will be integration of winemaking in the vineyard and cellars. The emphasis will be on practical applications throughout the Symposium. To this end, nine panel sessions will feature well-known international practictioners. There will be four sessions each day of the Symposium with a Public Lecture in an evening session on Thursday, Jan. 14. There will be no concurrent sessions.

The Symposium comprises a mix of oral and poster presentations. Each session has a theme, and at least one keynote speaker. A special session will include over 40 posters.

Local and international companies will have poster displays and staff available in a trade exhibition throughout the Symposium. There will be a range of vineyard and winery machinery on display at a winery barbeque on Friday, Jan. 15.

Specific topics include:

–Winemaking in the vineyard: What to plant and where; how to control vigor; how to manage dense canopies; avoiding pests and diseases, including organic viticulture; assessing a wine grape harvest and quality.

–Winemaking in the cellars: Production of botrytised wines, sparkling wines, Chardonnay, Bordeaux reds, Pinot Noir, Sauvignon Blanc; primary fermentation; malolactic fermentation and stabilization; yeast technology; avoiding must contamination; wine flavors and aromas; and appropriate use of wood.

–Wine and society: Wine and government–appellation, ingredient labeling, and health; wine marketing, wine journalism, and wine shows.

Registration Fees:

Early registration must be completed by October 10, 1987 with booking fees and completed registration form. A late fee of $75NZ will be charged after this date. Full registration is $300NZ and student registration is $250.

Accomodations

A variety of accomodations in a range of prices can be reserved with the registration form. More details are included in the registration booklet.

Canopy Management Workshop

A one-day canopy management workshop is offered on Saturday, Jan 16 near Auckland to provide 'hands on' experience at identifying problem canopies, and methods of overcoming them. Registration is $45NZ and includes equipment, an instruction manual and concluding drinks. An experienced staff will be on hand for demonstrations. Transportation and lunch are extra.

Wine Trail Tour of New Zealand

A 9-day Wine Trail tour which visits the major wine regions of New Zealand on both islands will be offered from Sunday, Jan. 17 to Monday, Jan. 25. The tour will include Auckland wineries and vineyards, Te Kauwhata Research Station, Totrua's thermal areas, and visits to the wine producing regions of Gisborne, Hawkes Bay, Martinborough, and Marlborough.

The tour price is estimated at $2340NZ per person shared twin accomodations depending on the number of delegates on the tour. The price includes accommodation and breakfast in good quality motor hotels, some lunches and dinners. Travel will be by first class tourist coach complete with courier driver and technical escort.

Establishment of New Viticultural Regions Seminar

A one-day seminar on Monday, Jan. 25, at Lincoln College in Christchurch offers speakers from both new and established cool-climate districts in six countries. Topics will include site selection, specific problems, and development of new districts concluding with a comparative wine tasting from new regions around the world. Registration is $100NZ.

Canterbury Vineyard and Winery Tour

A one-day tour on Tuesday, Jan. 26 will visit most wineries of Canterbury and the Lincoln research vineyard. The price of $42NZ includes a barbeque lunch.

Further Information

To register, write to the Symposium Secretary, PO Box 39-099 Auckland West, New Zealand. OR contact *PRACTICAL WINERY/VINEYARD* for details on a $1204US group air fare from San Francisco or Los Angeles, CA on January 9. To guarantee this low airfare, we must have a $150 deposit as seats are limited. Great American Travel Co. can arrange your add-on airfare from other departure cities in the US. Several choices of return flights are available.

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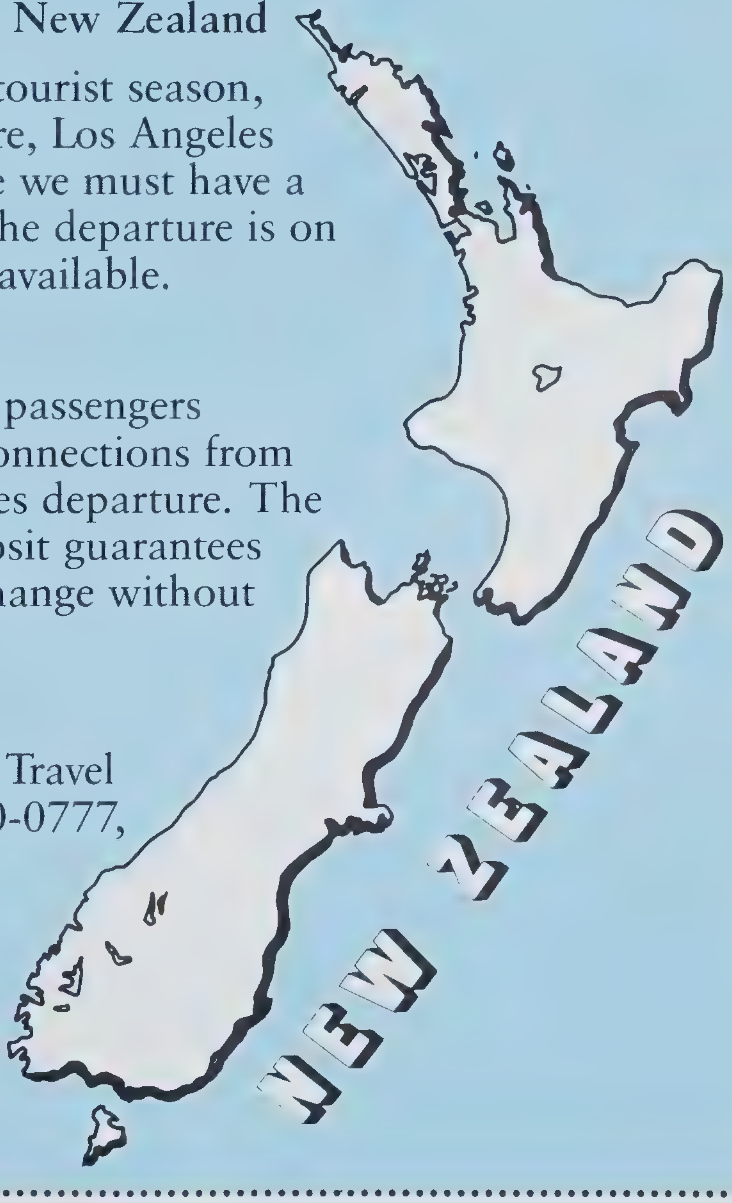

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Strategic Insights

for Successful Premium Wine Producers

John E. Van Kirk, Ph.D., & John Schaller, M.B.A.
Xavier University, Cincinnati, OH

American technology has revolutionized winemaking. The result – the 'quality/value' index has never been higher. However, while the consumer enjoys the fruits of these scientific efforts, the premium wine producer (PWP)[a] struggles for survival. Takeovers and consolidations are occurring at record rates. The same energy that produced these technological wonders must now be focused on the marketplace.

Razor-thin margins are the rule for the PWP. These low margins, coupled with very high capital intensity, have caused some industry observers to note that for many PWPs the key to success in the wine business is the ability to start with a large fortune and the willingness to end with a small fortune.

The primary source of the problem is rapidly-changing attitudes on the consumption of all alcoholic beverages – including wine. Table wine consumption, after growing at 10% annually in the 1970s, is in a state of decline in the 1980s. It was down 10% from 1984 to 1986. To compound the problem, foreign competition has been intense. Even though the premium segment does not appear to be as severely affected as the total table wine market, the road ahead will be rough for many PWPs.

However, for those with a well-thought-out plan, the next ten years can be both exciting and profitable.

Strategy Is What It's All About

"Strategy is what it's all about," says Jack Davies, president of Schramsberg Vineyards, Calistoga, CA.[1] If the ultimate objective is to reach reasonable financial goals, Davies is right on target. One thing is clear: the PWP faces a number of strategic challenges. Consider these empirically-documented facts:[2]

–The PWP is extremely capital-intensive: Firms with an investment/sales ratio of 1/1 on the average produce a pre-tax Return on Investment (ROI) of about 7%. In an effort to lever their large investment base, firms cut prices to move product, resulting in lower profits. The PWP's investment/sales ratio may run as high as 3.6/1 with a pre-tax ROI of 1% or less.

–The PWP is inventory-intensive: Both high inventories and high fixed capital damage profitability. An inventory/sales ratio of 0.5/1 is considered to be excessive. For the PWP, an inventory/sales ratio of 1.5/1 is common.

–No single PWP has a major market share: Market share and profitability are positively correlated with each other. Firms with 7% relative market share (relative to their three largest competitors) have a pre-tax ROI of 9% – at 35% relative market share, ROI climbs to 38%.

–Excessive marketing expenditures for capital-intensive firms (*i.e.*, the PWP) hurts profitability: Marketing to sales ratios of over 10% are considered excessive – producing a pre-tax ROI of only 9%.

–The good news – quality pays off: Quality, defined as the customers' perception of the business's product/service package as compared to that of competition, has a generally favorable impact on all measures of financial performance.

Our research and that of others indicates that the PWP should pay close attention to some specific premium wine consumer (PWC) characteristics when designing future strategies.

–*Taste* is the PWC number-one concern.[3]

–In our research, substantial consumers had mean purchases of 18.55 bottles/month, while the medium consumers had average purchases of 6.61 bottles/month. Thus, as much as 80% of the premium wine may be consumed by medium and substantial PWCs.[4]

---

[a] A PWP is defined by market price of product. *Impact* uses three categories: premium – Mondavi, Beaulieu, etc.; popular – Gallo, Colony, etc,; and low – Carlo Rossi, Franzia, Petri, etc. *Connoisseur's Guide to California Wines* now estimates that there are over 600 wineries in California; almost all are PWPs.

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—It's a middle-aged market. Sixty-seven percent of all wine is consumed by those between the ages of 30—59. The heart of the market for table wine is the 30—49 age group. They may account for 51.6% of the volume, with a large concentration in the 40—50 age group.[5]

—Wine is a hobby with medium and substantial PWCs.[6]

—Wine is primarily consumed with food. The medium and substantial PWC sees himself as a gourmet.[7]

—Income affluence is a key demographic characteristic for the medium and substantial PWC, with family income levels in excess of $40,000/year.‡[9, 10]

Business strategy is the design of actionable plans to achieve stated objectives. It focuses on two core elements:[11]

1) Product market investment decisions.
2) Development of a sustainable competitive advantage.

What follows is the presentation of a process that takes into consideration the above factors and provides a framework for future positive action that is well-documented.[12, 13, 14, 15]

External Analysis

The foundation of sound strategic design is a thorough analysis of factors external to the winery. An analysis of the external factors will often lead to uncovering strategic opportunities, identifying strategic threats and raising strategic questions.

Included in this area is the analysis of customers, competitors, the industry, and the environment (government, political, social, etc.). Fortunately, most of the needed data for this analysis are readily available. Much of the macro data is published periodically by *Impact* and other sources. The micro data are available monthly through reports published by the states.

Appendix I (which appears in Part II of this series) shows some of the data collected from the Van Kirk-Schaller research project. A few of the significant findings:

—As noted earlier, taste is the number-one variable considered by the PWC when making a purchase decision.[16]

—Medium and substantial PWCs are responsible for 55—80% of wine consumption.[17, 1]‡ The mean purchase levels for the PWC in our study were as follows:[19, 20]

continued on page 47

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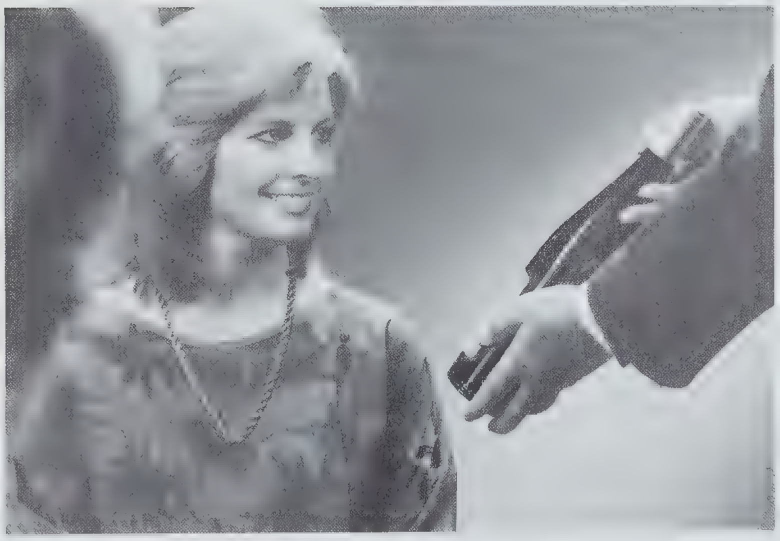
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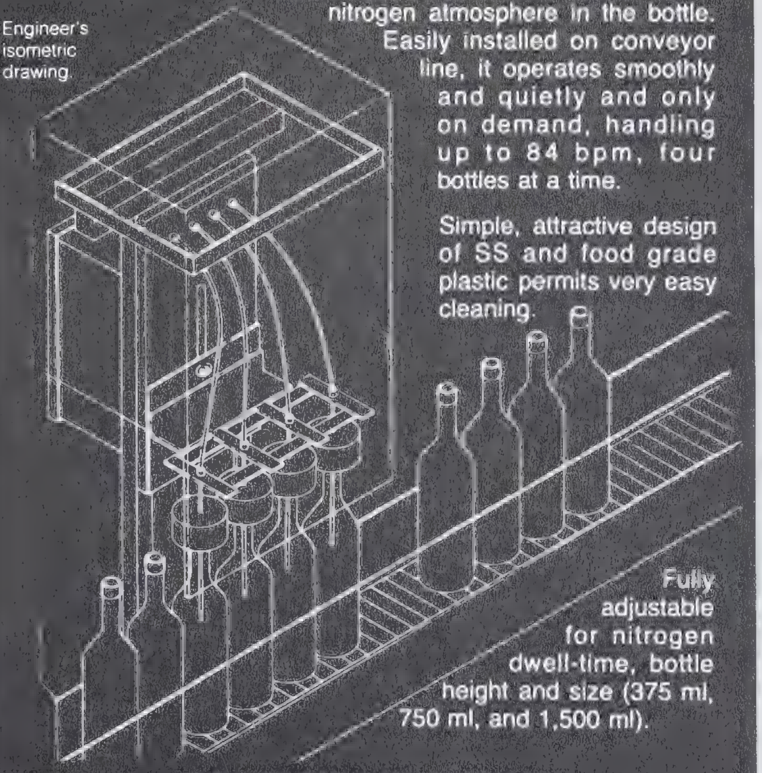
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continued from page 45

Number of Bottles Purchased per Month	Mean Purchase Level
1 - 2	1.53
3 - 4	3.66
5 - 8	6.61
9 - 32	18.55

These data confirm the earlier work of Falwell & Baritelle and others that consumption is highly concentrated in two consumer segments.[21, 22]

–Only 4% of those who drink wine do so more than four times/week, but they account for 53% of the total wine volume.[23, 24]

–The most optimistic forecast for table wine is a +2.4% per annum growth rate over the next 10 years.[25] While premium wine volume held steady for 1983, 1984, and 1985[26,] demographic changes over the next 10 years may allow this segment of the market to significantly exceed growth of table wines in general.

–Over the next 15 years:[27] The 40–50 age group will increase from 55 million to 80 million; the 25–34 age group will remain static.

–Medium and substantial PWCs are +40 years of age, large wage earners ($40,000+ in our study), well-educated, and married.[2]‡

–Premium wines accounted for 18% of all imported wines in 1985.[29]

–The medium and substantial PWC sees himself as a professional, as a gourmet, and as arts-oriented, and enjoys wine as a hobby.[30]

–Advertising has little impact on medium and substantial PWCs; they seldom read wine advertising.[31]

–The substantial-consumer segment is more price/value-oriented than other consumer segments.[32]

–Distribution channels in many states are joint liquor/wine operations. Sales activity is oriented around fighting for liquor volume and branded table wine sales (Gallo, etc.), not towards marketing premium wines.

–Competition is fierce. There are approximately 600 PWPs in California alone, with another 1,000+ around the world.

–Foreign currency differentials significantly influence the price of premium wines in the U.S.

From this information, the PWP must be able to:

–Identify opportunities, *i.e.*, the growing number of substantial-consumer PWCs in the 40–50 age group.

–Assess strategic threats, *i.e.*, the static number of potential substantial-consumers in the 25–34 age group.

–Answer significant strategic questions, *i.e.*, what market actions will foreign producers take to adjust to a weaker dollar?

Internal Analysis

After a thorough analysis of the external factors, the strategist must then take a hard look at the winery. Internal analysis is a bit analogous to a physical exam. It helps to determine the PWP's performance levels, strengths, weaknesses, and constraints. Specifically, the PWP should consider the following areas:

–Investment mix: Capital and inventory investment intensity relative to competition.

–Cash flow constraints: Market share increases and market growth drain cash. How much internal cash generation and debt will be needed to support these cash needs?

–Management abilities: PWP management tends to be technically-oriented with limited financial and strategic marketing orientation. How will these voids be filled?

–Technological competence: The PWP must assess his level of technical ability relative to his competition and the dollars required to remain competitive.

The PWP is a small business. Research suggests that small businesses fail because of:[33]

–Excessive optimism: Viewing the future in a way that facts do not support.

–Doing as they please: Most small business managers like to be involved in day-to-day activities and neglect planning.

–Lack of balanced growth: Small businesses either grow too fast for their capital or too slowly to survive.

–Failure to monitor results against well-defined performance standards: In today's rapidly-changing environment, good control systems signal danger before it is too late.

–Inadequate understanding of cash flow: A $5 million strategy cannot be financed with a $2 million pocketbook.

From this internal analysis, the PWP must develop strategies that lever his strengths and provide a defensible position for his weaknesses, given the constraints of the internal factors.

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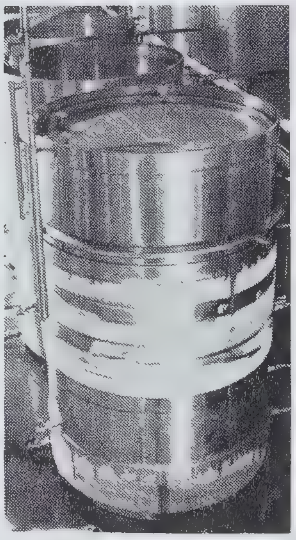

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The Mission Statement

Before a strategy can be designed, a winery needs to define clearly its overall mission. The military provides the perfect example. At the core of military strategy is the Mission Statement, which sets direction. It addresses these questions:[34]

–What business are you in?
–What is the scope of your business?
–What is the essence of your business?
–What growth direction are you pursuing?

A reasonable PWP Mission Statement might read: "The mission of PWP-X is to provide premium wines that fit the *taste* of medium and substantial PWCs in the eight target markets of Massachusetts, Michigan, California, Ohio, Washington, Illinois, North Carolina, and Texas via an efficient and effective distribution system that will deliver quality wines to off-premise and on-premise markets at acceptable prices."

There are many distractions in the marketplace. There is always the opportunity that looks irresistible. Every time the PWP makes an unplanned deviation from the primary mission, there is a cost. Well-structured mission statements keep the organization on target.

In Part II, we will discuss setting objectives, selecting alternatives, and market segmentation.

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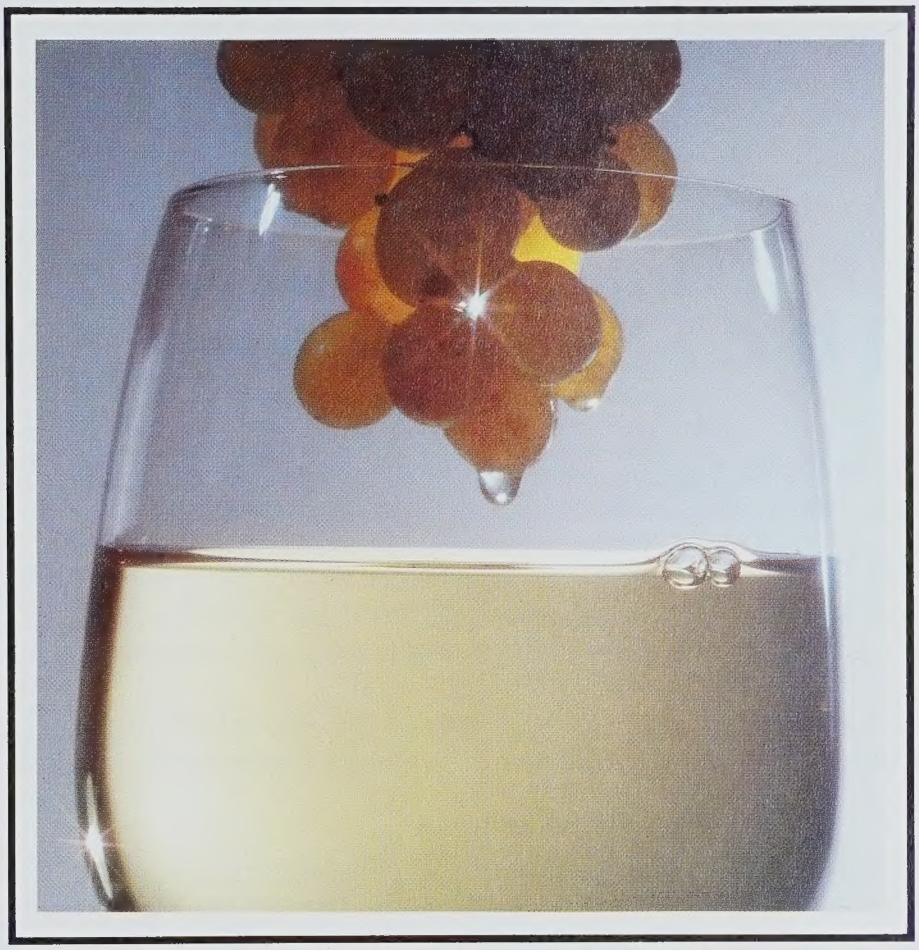

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ARCHITECTS
- Hall & Bartley ... 47

BAG-IN-BOX (Equipment/Packaging)
- Scholle Corp. ... 46

BARREL BROKER/COOPERAGE SUPPLIES
- Barrel Builders ... 35
- Boswell Company ... 48
- Innerstave ... 30
- Mel Knox ... 33
- Seguin Moreau ... 29
- Sonoma Coopering Co. ... 46
- Tonnelleries de Bourgogne ... 37
- Tonnellerie Radoux ... 24
- Tonnellerie Vicard ... 41

BARREL BUNGS
- Barrel Builders ... 35
- Boswell Company ... 48
- ITW Fastex/Agtex ... 9

BIRD NETTING
- Wildlife Control Technology ... 33

BOTTLES (Glass)
- ENCORE! (Sterilizing and Sales) ... 34
- Mel Knox ... 33

BOTTLING EQUIPMENT
- Browns Bottle ... 7
- CF NAPA ... 46
- The Compleat Winemaker ... 41
- Criveller Co. ... 23,33
- fp Packaging,Inc. ... 46
- KLR Machines,Inc. ... 15
- Process Engineers,Inc. ... 45
- Prospero's Equipment Corp. ... 2
- RLS Equipment Co.,Inc. ... 12,34,46
- Scott Laboratories,Inc. ... 3
- SEN Machines,Inc. ... 8

BOTTLING SERVICES (Portable)
- CF NAPA ... 46
- Chateau Bottlers ... 46
- Estate Bottling ... 34
- Mobile Wine Line ... 40

BULK WINES, GRAPES
- Vinwood Cellars ... 13

CAPSULES
- Browns Bottle ... 7
- CF NAPA ... 46
- fp Packaging,Inc. ... 46
- KLR Machines,Inc. ... 15
- Lafitte Cork & Capsule ... 22
- Ramondin USA Inc. ... 44
- RLS Equipment Co.,Inc. ... 12,34,46
- Scott Laboratories,Inc. ... 3
- SEN Machines,Inc. ... 8

CHEMICALS
- The Compleat Winemaker ... 41
- Criveller Co. ... 23,33
- E T S ... 36
- Pickering Winery Supply ... 37
- VINQUIRY ... 20

CLEANING EQUIPMENT/SUPPLIES
- Butterworth Sales & Repairs,Inc. ... 42
- The Compleat Winemaker ... 41
- Key Industrial Associates ... 37
- Pickering Winery Supply ... 37

COMPUTER SERVICES
- Data Consulting Associates,Inc. ... 41
- Pickering Winery Supply ... 37
- Jim Vahl ... 46

CORKS
- Browns Bottle ... 7
- fp Packaging,Inc. ... 46
- KLR Machines,Inc. ... 15
- Lafitte Cork & Capsule ... 22
- Pickering Winery Supply ... 37
- RLS Equipment Co.,Inc. ... 12,34,46
- Scott Laboratories,Inc. ... 3

CRUSHERS/STEMMERS
- The Compleat Winemaker ... 41
- KLR Machines,Inc. ... 15
- Process Engineers,Inc. ... 45
- Prospero's Equipment Corp. ... 2
- RLS Equipment Co.,Inc. ... 12,34,46

CUSTOM PROCESSING
- Vinwood Cellars ... 13

DEJUICERS
- KLR Machines,Inc. ... 15
- Process Engineers,Inc. ... 45

ENGINEERING SERVICES
- Hall & Bartley ... 47
- Oscar Larson & Associates ... 45,47
- Storm Engineering ... 34

ENZYMES
- GENENCOR ... 49
- Scott Laboratories,Inc. ... 3

FILTER EQUIPMENT
- The Compleat Winemaker ... 41
- Criveller Co. ... 23,33
- KLR Machines,Inc. ... 15
- Pedia-Kreyer USA,Inc. ... 5
- Pressure Filtration Specialists ... 52
- Process Engineers,Inc. ... 45
- Prospero's Equipment Corp. ... 2
- RLS Equipment Co.,Inc. ... 12,34,46
- Scott Laboratories,Inc. ... 3
- SEN Machines,Inc. ... 8

FILTER MEDIA
- Eagle Picher ... 11
- KLR Machines,Inc. ... 15
- Process Engineers,Inc. ... 45
- RLS Equipment Co.,Inc. ... 12,34,46
- Scott Laboratories,Inc. ... 3
- SEN Machines,Inc. ... 8

FINING AGENTS
- E T S ... 36
- KLR Machines,Inc. ... 15
- Scott Laboratories,Inc. ... 3
- SEN Machines,Inc. ... 8

FITTINGS (Stainless Steel)
- The Compleat Winemaker ... 41
- Criveller Co. ... 23,33
- JV Northwest Engineering ... 48
- Key Industrial Associates ... 37
- Process Engineers,Inc. ... 45
- RLS Equipment Co.,Inc. ... 12,34,46

HEAT EXCHANGERS
- KLR Machines,Inc. ... 15
- Pedia-Kreyer USA,Inc. ... 5
- Power Refrigeration Co. ... 51
- Process Engineers,Inc. ... 45
- Refrigeration Technology,Inc. ... 14
- Scott Laboratories,Inc. ... 3

HOSE
- The Compleat Winemaker ... 41
- Key Industrial Associates ... 37
- Process Engineers,Inc. ... 45
- Prospero's Equipment Corp. ... 2
- RLS Equipment Corp. ... 12,34,46

IRRIGATION EQUIPMENT
- ITW Fastex/Agtex ... 9
- Parker Engineering ... 13

LABELS
- Blake Printery ... 29
- fp Packaging,Inc. ... 46
- Gordon Graphics ... 45

LABORATORIES (Materials/Wine Analysis)
- E T S ... 36
- Scott Laboratories,Inc. ... 3
- VINQUIRY ... 20

LAND PLANNING
- Oscar Larson & Associates ... 45,47

NURSERIES
- Schloss Tucker-Ellis ... 46

PERSONNEL SERVICES
- Snelling & Snelling ... 32

PRESSES
- The Compleat Winemaker ... 41
- KLR Machines,Inc. ... 15
- Process Engineers,Inc. ... 45
- Prospero's Equipment Corp. ... 2
- RLS Equipment Co.,Inc. ... 12,34,46
- Scott Laboratories,Inc. ... 3
- SEN Machines,Inc. ... 8

PROCESS CONTROL SYSTEMS
- The Compleat Winemaker ... 41
- Pedia-Kreyer USA,Inc. ... 5
- Process Engineers,Inc. ... 45

PROCESS PIPING
- JV Northwest Engineering ... 48
- Key Industrial Associates ... 37
- Process Engineers,Inc. ... 45

PROMOTIONAL MATERIALS
- Blake Printery ... 29
- Gordon Graphics ... 45

PUMPS
- The Compleat Winemaker ... 41
- Criveller Co. ... 23,33
- Key Industrial Associates ... 37
- KLR Machines,Inc. ... 15
- Process Engineers,Inc. ... 45
- Prospero's Equipment Corp. ... 2
- RLS Equipment Co.,Inc. ... 12,34,46
- Scott Laboratories,Inc. ... 3

REFRIGERATION/COOLING
- Edwards Engineering Corp. ... 24
- KLR Machines, Inc. ... 15
- Power Refrigeration Co. ... 51
- Power Refrigeration Parts Co. ... 34
- Refrigeration Technology,Inc. ... 14

SPARKLING WINE EQUIPMENT
- The Compleat Winemaker ... 41
- fp Packaging,Inc. ... 46
- Pedia-Kreyer USA Inc. ... 5
- Process Engineers,Inc. ... 45
- Prospero's Equipment Corp. ... 2

SURVEYING
- Oscar Larson & Associates ... 45,47

TANKS (Metal)
- JV Northwest Engineering ... 48

TRANSPORTATION (Bulk Wine)
- Tri-Transport,Inc. ... 23

TYING/TRAINING SUPPLIES
- ITW Fastex/Agtex ... 9
- Live Wire Products ... 39

VALVES
- The Compleat Winemaker ... 41
- Key Industrial Associates ... 37
- Process Engineers,Inc. ... 45
- RLS Equipment Co.,Inc. ... 12,34,46

WAREHOUSING/DISTRIBUTION
- Groskopf Warehouse ... 38
- Sonoma Wine Services ... 13

WINEMAKING CONSULTING
- Steve MacRostie ... 46
- VINQUIRY ... 20

YEAST
- The Compleat Winemaker ... 41
- Criveller Co. ... 23,33

YEAST/MALOLACTIC BACTERIA
- E T S ... 36
- Scott Laboratories,Inc. ... 3
- VINQUIRY ... 20

MALOLACTIC BACTERIA (only)
- Pickering Winery Supply ... 37

Classified ads are on page 34.

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